Amateur Radio

December 1995
Volume 63 No 12

WIRELESS INSTITUTE OF AUSTRALIA

Journal of the Wireless Institute of Australia

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Cover

The official opening of the Hervey Bay Amateur Radio Club "Australia Remembers" special event station, VI50PEACE, was performed on 15 August 1995 by Lyn Truss (daughter of the late Archie Caswell VK4CB). With Lyn is her husband Warren Truss, Federal Member for Wide Bay. Although they were very busy on this special day with other celebrations up and down the coast, they found time to open the station and stayed for afternoon tea. See *Club Notes* for details of operation of VI50PEACE.

Photo by Gray Taylor VK4OH

Become involved in the future direction of *Amateur Radio*. Complete the *Amateur Radio* Readership Survey on page 56 and send it in. You could win one year's free membership of the WIA.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Licence Fees

Back in June, in an editorial entitled "Freedom of Speech", I stated that amateurs in the United States did not pay fees for their licences because this was an infringement of the right to free speech. We have now received a very friendly letter from David Sumner K1ZZ, Executive Vice President of the ARRL, which tells us the full story. We were wrong!

Essentially, in November 1989, as a result of representation by the ARRL to Congress, a decision was made to exempt amateurs from licence fees since "amateurs do not use the spectrum for profit, and they render important services to the public during natural disasters". The detailed story of negotiations was published in *QST*, January 1990.

Perhaps the situation in Australia is not quite the same as in the US, although the parallels are impressive. Their RACES and our WICEN are very similar. ARRL and WIA have much in common. Our political systems are similar. Recently we have been able to negotiate a reduction in fees from $71 to $51. Should this be the limit? There are many VK amateurs who would like to see our fees reduced much further. If the USA has been persuaded to drop them to zero, why should Australia not do likewise?

Even if this could be shown to be impracticable, that portion of the fees currently described as "tax" (spectrum access and maintenance) seems unfair when applied to amateurs who, by definition and regulation, can derive no taxable income from their hobby. And if 400,000 CB operators can be exempt from licence fees as they now are, why should not 18,000 amateurs?

As regards use in emergencies, while CREST (the CB emergency service) is no doubt an estimable organisation, there are limits to what can be done on 27 or 477 MHz compared with the capabilities of the amateur bands.

I make the above remarks and ask the above questions purely in personal curiosity. I am not in any way reflecting, or reflecting upon, WIA policies. But it seems to me that some questions still require answers.

Christmas and New Year greetings to all.

Bill Rice VK3ABP
Editor
ar

WIA News

Intruder Watch, Your Help Needed

As an active amateur, do you have HF receiving equipment and ten or 20 minutes a week to spend in the shack? Do you care about protecting your hobby?

If you can answer yes to the above questions, then why not translate that commitment into action and look for intruders on our exclusive HF amateur bands?

Persistent intrusions of broadcast, military, diplomatic, utility and other non-amateur services cause interference to legitimate amateur radio operations on the HF bands.

Observing and logging intruders on our bands has never been easier, with the help of the WIA Intruder Watch Service. Reports of intruders, co-ordinated on an international level through the International Amateur Radio Union (IARU), have been effective in removing intruders, especially in recent years.

WIA Intruder Watch Co-ordinator, Gordon Loveday VK4KAL, needs reports on intrusions to enable action to be taken to have the intruders shift frequency out of our exclusive bands. On request, Gordon will forward details to anyone interested in helping Intruder Watch defend our bands against interference from unauthorised users. He can be contacted via his Call Book address.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers			Weekly News Broadcasts		1996 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Rob Apathy Len Jones Alex Colquitt	VK1KRA VK1NLJ VK1AC	3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroups, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Secretary Treasurer (Office hours e-mail address: wainsw@sydney.dialix.oz.au	Michael Corbin Eric Fossey Eric Van De Weyer Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24,950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Secretary Treasurer (Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 2nd and 4th Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Treasurer	Geoff Sanders John Stevens John Presotto	VK4KEL VK4AFS VK4WX	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Garry Herden Maurie Hooper Charles McEachern	VK5ZK VK5EA VK5KDK	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Secretary Treasurer	Cliff Bastin Mark Bastin Bruce Hedland-Thomas	VK6LZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Secretary Treasurer	Andrew Dixon Robin Harwood Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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■ History

Australian Amateurs Remember

Herb Stevens VK3JO, in this year of "Australia Remembers", researchs the recommencement of amateur activity after World War II.*

"SATURDAY DECEMBER 22 1945. IT'S ON". This expression, prominent in the log of VK3OH, typifies the jubilation of amateurs at being able to resume on-air activity after many years of enforced silence during World War II.

Closed Down for "the Duration"

Typical of all Australian amateurs at the time, George Paterson VK2AHJ received a handwritten telegram, dated 1 September, on 2 September 1939 instructing him to cease amateur operation immediately, that *"valves transformers tuning coils operating keys and microphones must be dismantled from equipment"* and that he must advise *"by first post to Senior Radio Inspector in your State that these instructions have been complied with".*

A few days later George received a letter dated 5 September 1939 stating that *"Further to telegram of 1 Sep 1939 will you please note that your aerial, if specially designed for transmitting, must also be dismantled."*

That was it! Amateur radio on-air activity was closed down for over six years!

However, not all amateur radio activity ceased. A letter from George VK2AHJ, accompanying his log, refers to a war-time emergency network set up in Sydney by the VK2 Division of the WIA. *"About early 1941 the WIA in NSW set up a radio system in conjunction with the National Emergency Service. This was organised by Wal Ryan VK2TI, the then NSW president. I was involved in this at the Waverley Police Station and I think we made the equipment to a standard design and installed it at Police stations in concrete huts adjacent to similar huts which were equipped for telephone communication to a central office under Wynyard railway station. The idea was that, in the event of the telephone system being disabled, the radio system would take over. We had regular practices but, happily, no "real thing". Unfortunately, it has all become a bit hazy after 50 odd years".*

"It's Over!"

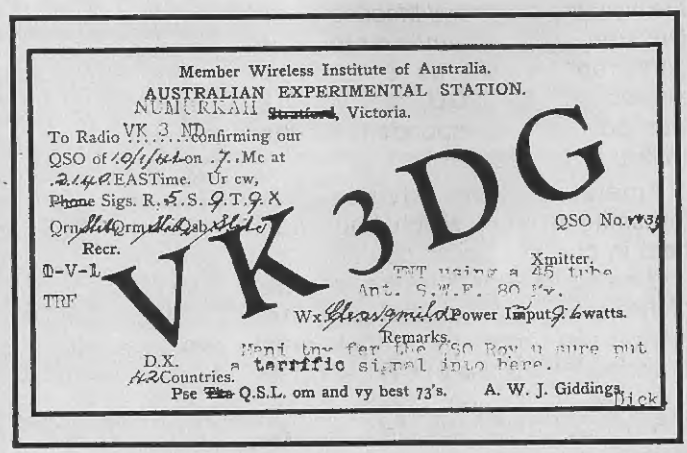
The war, which had dragged on for just on six years, finally ended with the cessation of hostilities in the Pacific war in August 1945.

According to the WIA Federal Historian, John Edmonds VK3AFU/VK3ATG, *"The sudden end of the war took both the WIA and the average amateur by surprise, and then the very quick response by the PMG's Department was equally unexpected. Australian amateurs were among the first to have their licences renewed.*

The strength of amateur radio during the war had been mostly in VK2 and VK3. The less populous states had begun reviving their Divisions by about mid-1945. The revival was remarkably quick but information coming out of the Divisions was necessarily limited for several months."

Resumption of Amateur Radio On-Air Operations

John Edmonds VK3AFU did quite a bit of research for me about this period in amateur history and wrote: *"Logs and copies of logs in the archives are quite unemotional about the resumption but they are all from people who had been in the services. For example, Fred Bibby VK3OL, later Squadron Leader, RAAF, noted in 1939 simply* "War — Closed down" *and then* "2215, 24/11/1946; A3, 14020, VK3GX, R/T Test." *No fanfares at all. Amateurs who had not been in the services may have felt differently.*



Two QSL cards from the WIA Collection which the Honorary Curator, Ken Matchett VK3TL, says are the earliest in the Collection to confirm contacts after the resumption of amateur radio subsequent to the end of World War II.

Of the 2000 pre-war amateurs, 23% had been in the RAAF, 14% in the AMF, 6% in the RAN or MN, and 12% in various reserves. Many of these were still in the services when licences were reissued and reappeared on the amateur bands over the next year or so. Fred Bibby was typical.

Because the first licenses were limited to 28 MHz and above, some amateurs had to wait until 7, 14 and 3.5 MHz became available. There was, though, much more interest in 28 MHz than there would otherwise have been, even though 28 MHz propagation was very ordinary.

Correspondence in the WIA archives relates mostly to the rebuilding of the WIA after the wartime maintenance, particularly in VK5 and VK6, and then to the WIA suggestions for post-war regulations and frequencies. The need to keep up operating standards and to recruit new amateurs also concerned the Federal organisation."

In order that operations could re-commence, it was necessary that the Government formulate new regulations under which amateurs could operate. These were finally published in the Government Gazette of 29 November, 1945, thus finally clearing the way for operating to commence.

It is interesting to read in the NSW Division Annual Report, published in the January 1946 issue of *Amateur Radio,* about the much sooner than expected formulation of regulations by the Government. *"Much of the credit must be given to E H Cox VK2GU for his splendid work and, at the November General Meeting of the Division, Life Membership was conferred on him as a token of appreciation."* VK2GU, later VK1GU, was political correspondent for the *Herald* in Canberra.

Amateurs were advised that transmitting gear, which had been held in custody, could be collected, and an application form for re-issue of licences was included with this advice. In part, the regulations provided for the use of CW (14 wpm) and AM phone on 28-29, 50-54, 166-170 and 1345-1425 MHz, but NO MUSIC (in pre-war days, some amateurs played recorded music on some of the HF bands, as well as on the normal AM broadcast band in periods when broadcasting stations were closed — there were no continuous 24 hour transmissions then).

First Contacts

Again I turn firstly to John VK3AFU's comments. *"In any look at the first amateurs back on air it must be remembered that, as applications for licence renewal were received by the Department, they were held until renewal was authorised and then the licences were issued in alphabetical order of the first letter of the surname of the applicants. So Abbott almost certainly could operate before Ziegler, even if Ziegler had applied first.*

The earliest resumptions of legal transmissions that the WIA archives have are as follows:

***VK2** — 10 m was very active by mid-February 1946 but there are no details. The first 6 m activity may have been in VK2 where VK2LZ, VK2WJ and VK2LS were probably first on air.*

***VK3** — The first claimed VK — VK contact was between VK3EE and VK3BQ, date unknown, but probably late December 1945. There were 15 active VK3s on 10 m by mid-January 1946, 6 m was active (five or six stations), and there were two stations (VK3MV and VK3TZ) on 112 MHz. They may have been the first on 112 MHz.*

***VK4** — There is no detail but not surprisingly VK4 stations were most active in 10 m DX from mid-January.*

***VK5** — No detail at all but VK5 amateurs seem to have been later in getting their renewals.*

***VK6** — No detail at all.*

***VK7** — The first active VK7s were probably VK7GJ, VK7LJ and VK7CW. Six VK7s were active on 10 m in February 1946."*

So, on what dates and by whom were the first post-war transmissions made?

Perusal of logs received in response to my appeal for information some months ago show that the earliest to resume transmitting were VK3DH, VK3VM, VK3BQ and VK3YP, and that most contacts were with local stations.

It is recorded in the Victorian Division Notes in the February 1946 issue of *Amateur Radio* that VK3ZT, 3EO, 3XD, 3LX, 3EE, 3SQ, 3UQ, 3BQ, 3VM, 3DH, 3XJ, 3SB, 3YP, 3CP and 3NW were active on 28 MHz. There are no similar lists in the notes from other states, although the NSW Division Notes of February 1946 state, *"As predicted, quite a few stations in VK2 and VK3 were able to exchange greetings per medium of Amateur Radio. What a surprise the Yanks received to hear VK stations."*

Here in VK3, a great friend of the late Ivor Morgan VK3DH, Chris Long (to whom I am indebted for a photostat copy of the relevant page of Ivor's log) has a disc recording made by Ivor of 28 MHz contacts with VK3BQ, 3VM and 3YP on 26 December 1945. Ivor's log shows contacts on 22 December 1945 with VK3VM. VK3NW opened up on 22 January 1946, contacting VK2NY. VK3CP *"Got on air as soon as possible."*

It appears that those who managed to get on air within one month of the Government Gazette notice were in a position to act quickly. Not so the writer. It was May 1946 when I opened up on 28 MHz.

Some logs show interesting DX contacts on 28 MHz, the lower frequencies not being available until 5 July 1946. VK3HL's log shows plenty of DX on 14 MHz.

The log of VK5KL is of interest as he was located at Darwin and made several contacts using 28 MHz AM. He worked four countries in two continents, with best DX being VU2LR. He also made one 6 metre contact with ZL1HY. In addition to contacts made, VK3VQ also details the valve line-up of his transmitter and receiver in his log.

Other logs of that period came from VK3UJ, VK3AP, VK3RZ, VK2ZC, while VK5ZU, VK2UB and VK2RP sent notes giving dates of their first post war QSOs in 1946.

From the WIA QSL collection, Ken Matchett VK3TL supplied photo copies of QSL cards of VK3VJ and VK3DG, both showing QSOs in 1946!

My sincere thanks to all who contributed to this history project.

*42 Edinburgh Road, South Blackburn VIC 3130

ar

■ Receivers

Low Noise VHF Pre-Amp

Ron Graham VK4BRG provides all the information needed to build a very useful receive pre-amplifier covering from 135 to 150 MHz.*

This VHF pre-amplifier has 50 ohm input/output impedance, is designed to provide around 18 dB gain and, with suitable modifications to the tuned circuits, covers the complete VHF band. The standard units tune the 2 m amateur band and the VHF weather satellite band, that is 135 to 150 MHz.

Two tuned circuits and input diode protection precede the BF-981 dual gate MOSFET. A broad band 9:1 impedance ratio RF transformer is used to match the BF-981 drain to the 50 ohm output line. This output line is suitably decoupled in order that the unit may be powered with approximately 12 volts via the output coax feedline for masthead pre-amp applications.

The above configuration provides a low noise figure combined with a high dynamic range. Extremely high stage gain tends to compromise the above, is normally not needed, and may lead to instability.

The small size of the printed circuit board (25 x 40 mm) means that it may be accommodated inside a radio with poor sensitivity and thus improve that radio's performance. Its principal application, however, is as a mast head pre-amplifier. In this situation it should greatly improve the overall receive system performance. This is of particular interest where long runs of feedline must be employed. Placing a pre-amp of this type at the mast head, close to the antenna, largely overcomes the receive system degradation caused by feedline losses. In some installations cheaper feedline (eg RG-58 in lieu of RG-213) may be used and suitable system performance maintained.

For mast head applications, the printed circuit board will fit into a 50 x 30 x 38 mm die cast metal box and, with BNC co-ax connectors fitted at each end, a neat and rugged unit results. It is recommended that, for continual exposure to the weather, this pre-amp assembly be further enclosed or covered with a plastic box. A suitable size box may be obtained from kitchenware suppliers. Exposure to sunlight will eventually degrade the plastic and it should be checked after 12 to 18 months. Alternatively, the pre-amp may be incorporated in a suitable enclosure that is normally used for the feedline/antenna termination. Electrical conduit junction boxes are recommended for this application.

Construction

All components are fitted to the ground plane (top) of the PCB. Firstly, fit components which have one lead soldered to both the top and bottom of the PCB, that is C1, C2 (rounded end to earth), D1, D2, C4, R3, R1, C3, C5, C7 and C6. You will thus have the required access for soldering to the ground plane.

Wind RFC, three turns passed through the toroid of 0.2 mm wire. Wind L2, six turns of 0.2 mm wire close wound in an anti clockwise direction on a four mm drill.

Wind L1 in two sections. Firstly, five turns as above. This section fits the two PCB holes either side of L1 as shown on the parts placement diagram. The one turn is actually about 7/8 of a turn and fits between the remaining two PCB holes.

Fit the RFC, L1 and L2 at this stage. The earthy ends of L1 and L2 are soldered to both sides of the PCB. The bottoms of the coils are spaced about one mm above the PCB, their axes parallel and a spacing of about two mm gives the desired amount of coupling.

Wind T1. Three pieces of 0.2 mm wire, 75 mm long, are twisted together at about three twists per 10 mm (not critical). Wind five turns through the toroid and space the winding over almost the complete circumference of the core. You will need an ohm meter to sort out the windings as per the schematic. Arrange the lead out positions so that they will fit the PCB. This takes a bit of thought! The joint that doesn't terminate on the PCB is simply tucked up the side of the winding out of harm's way.

Fit T1, C8 and TR1. The long lead of TR1 is the drain, so, with the device markings uppermost, the long lead faces the output end of the PCB. At this stage it would be wise to check your work.

Testing

For the DC test, apply approx 12 V DC to the output connector PCB pad via a milli-amp meter. Current should be about 10 mA. If not, investigate!

Specifications

Gain	18 dB approx
Tuning Range	135 — 150 MHz (standard)
Noise Figure	<1 dB
Input Impedance	50 ohms (unbalanced)
Output Impedance	50 ohms (unbalanced)
Operating Voltage	10 — 15 volts
Current Consumption	10 mA (at 12 volts)
Circuit Board Size	25 x 50 mm
Height	12 mm

Note: Supply voltage is fed via the RF output line for mast head pre-amp applications. By simply removing the RF choke the supply may be applied directly to the PC board.

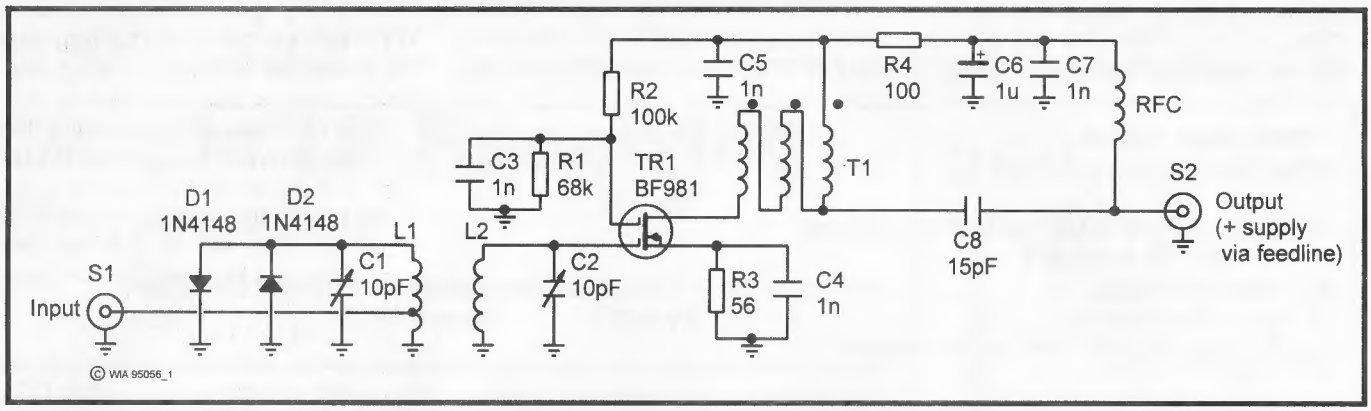


Fig 1 — Circuit of the VHF pre-amp.
RFC 3 turns 0.2 mm wire, FB43101 bead
L1 5 + 1 turns 0.4 mm wire, 4 mm diameter
L2 6 turns 0.4 mm wire, 4 mm diameter
T1 5 + 5 + 5 turns 0.2 mm wire, T25-12 core

For the RF test and alignment, temporarily attach suitable co-ax connectors to the input and output pads and ground, either via short pigtails or small diameter co-ax. If you have a suitable signal generator it is a simple matter of feeding that into the preamp and having the output of the preamp feeding a suitable receiver. The other alternative is to use signals off air.

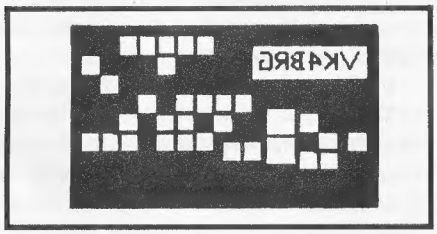


Fig 2 — Full size copy of the etching pattern for the ground plane side (top) of the circuit board.

Note that you may have to disconnect the preamp RFC and connect a separate 12 volt line to it if your test receiver doesn't feed the supply via the feedline. Using as weak a signal into the preamp as is possible to work with, adjust the trimmers for maximum preamp gain. It will be necessary to back off the input signal level as the trimmers are peaked. There is considerable interaction between the pairs of input and output trimmers so spend some time trying various combinations of adjustments to achieve the best result. The final small adjustments should be made to achieve the maximum quietening on an FM

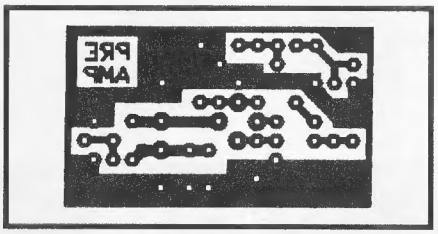


Fig 3 — Full size copy of the etching pattern for the component side of the circuit board.

receiver with a weak signal source. Note that, with the preamp sitting unshielded on the work bench, it may pick up signals directly. Make sure that whatever input signal source you are using is being received via the input socket. Prove this by disconnecting the input signal.

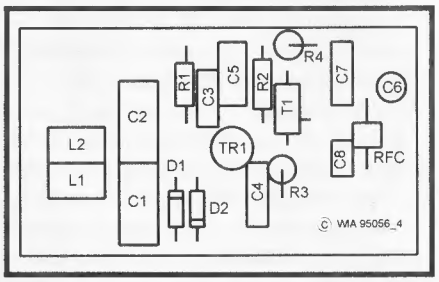


Fig 4 — Enlarged, not-to-scale component layout for the VHF pre-amp circuit board.

Final Notes

It is strongly recommended that the correct operation of the pre-amp be verified prior to mounting it in an enclosure, after which the trimmers may need a final adjustment.

One realises that most modern miniature designs for home construction call for:—

1. a specific PCB and that, even though a PCB pattern is supplied, a lot of potential constructors are not in a position to make the board; and
2. specific components with lead pitches to suit the PCB.

With the above in mind, and to assist potential constructors, I am trying to organise the supply, essentially at cost of PCB and parts

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Also in the pipeline are articles describing the details for mounting the pre-amp into a small die cast box, and an active turnstile antenna for VHF weather satellite reception using the pre-amp.

Parts Schedule

Qty	Description	Lead Spacing	Notes
1	PCB Special double sided 40 x 25 mm		
1	BF-981 DG MOSFET		
2	1N4148 diodes		Use BAW62, BA482 if available
2	3 — 11 pF trimmer	5.0 mm	Murata (white)
1	56 ohm 1/4 watt 5% carbon resistor		
1	100 " " " "		
1	68 k " " "		
1	100 k " " "		
1	15 pF NPO ceramic capacitor	2.5 mm	Philips 680 series
4	1 n Hi K " "	5.0 mm	Philips 629 series
1	1 μf 35 V tantalum "	.5 mm	
1	FB43101 ferrite bead		Amidon
1	T25-12 toroidal core		Amidon
300 mm	0.2 mm diameter enamel wire		
300 mm	0.4 mm " " "		

*PO Box 323, Sarina QLD 4737 **ar**

WIA News

Amateurs Asked to Join Search for Extraterrestrial Intelligence

Radio amateurs around the world have been invited by the SETI League to join in an upcoming radio-astronomy project to search for extraterrestrial intelligence.

Named "Project Argus", the SETI League hopes to involve 5000 amateurs around the world in scanning the sky for RF signals which may indicate the existence of intelligent life elsewhere in the universe.

Target date for the start of the project is Earth day, 21 April 1996, according to a report in The *ARRL Letter.* The project name Argus was chosen in 1971 at Stanford University in the US, for a proposed SETI receiver that was never funded. Argus was a figure from Greek mythology, with 100 eyes, which enable it to look in all directions at once.

SETI League adviser and assistant director of the Ohio State University Radio Observatory, Dr Robert Dixon W8ERD, hopes to share technology with the SETI League, according to SETI League director, Paul Shuch N6TX.

Moves to Expand the 80 m DX Window

The WIA has made representations to the Spectrum Management Agency (SMA) for an expansion of the 80 m DX window, which is presently only 6 kHz wide, from 3794 to 3800 kHz.

This action followed a formal survey of commercial users of the spectrum between 3750 kHz and 3899 kHz, carried out on behalf of the Federal WIA by the Victorian Division. The survey results were formally presented to the WIA Federal Council at its October Extraordinary Convention, held in Melbourne over 28-29 October.

The Federal Council decided that the WIA SMA Liaison team would negotiate with the SMA seeking an expansion of the 80 m DX window. A questionnaire was sent to the 296 licensees between 3750 and 3899 kHz, listed on the SMA's database as at April 1995, which was supplied to the WIA following an agreement reached at the WIA-SMA Liaison meeting held on 18 May this year. Replies to the questionnaire were received from more than 55% of the licensees surveyed.

The survey asked them if they used their allocation, at what times of the day they used it, and if they had any objection to the Amateur Radio Service sharing the allocation.

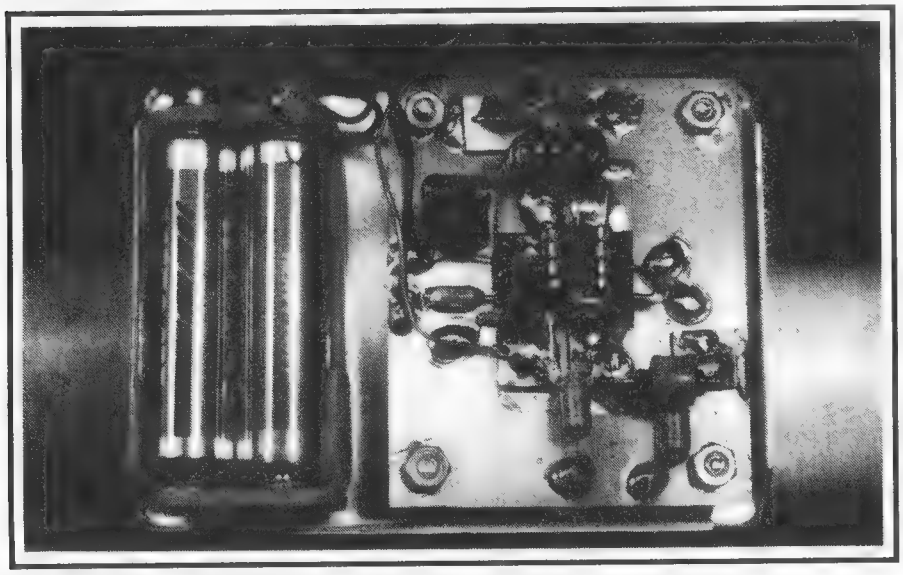
The response from the survey was generally positive to the proposition of sharing spectrum in this region on a non-interference basis.

The 80 m DX window is presently being monitored by the SMA, and the WIA urges users to take care as any inappropriate operating practices could harm the WIA case for an expansion. The SMA has already issued warning letters this year to a number of operators who apparently breached current operating rules.

Receivers

Simple LF Receiving Converter

Drew Diamond VK3XU describes another useful receiving unit for the shack.*



LF converter circuit board and batteries mounted in a small box.

In the happy event that amateurs gain an allocation in the 160 — 190 kHz band, it would be good to be able to listen to signals on this band. Indeed, some experimenters are already operating in this region. Here are details of a simple converter which provides adequate signal handling and coverage from (nominally) 10 kHz to about 500 kHz.

The Civil Aviation Authority operates numerous non-directional beacons (NDBs) as navigation aids for aircraft. On LF (or "long wave") they range in frequency from about 200 kHz to 420 kHz, and consist of a carrier amplitude modulated by a Morse identifier of usually two or three letters. For instance, Essendon near Melbourne is EN, Wonthaggi is WON.

These make excellent practice material for persons in the early stages of learning the code. Character speed is about 8 wpm, so the student soon learns to recognise the collection of letters being sent repeatedly under actual "radio" conditions. Even the most reluctant student will find it a painless and effective introductory method if run in the background whilst doing other "more important" things.

Circuit

A simple low pass filter significantly attenuates antenna signals above about 500 kHz so that broadcast stations do not overload the mixer. An NE602AN balanced mixer IC has its local crystal oscillator running at (say) 3 MHz, making 3.000 MHz equal to zero reference (0 kHz). For example, a signal on 190 kHz will therefore be converted to 3.190 MHz, and a signal on 300 kHz will appear on 3.300 MHz, which may be tuned by an ordinary SW or HF receiver (without in-built antenna) which covers that range. Similarly, a 3.5 MHz conversion crystal would have 0 kHz at 3.500, a 4 MHz crystal at 4.000 MHz and so on.

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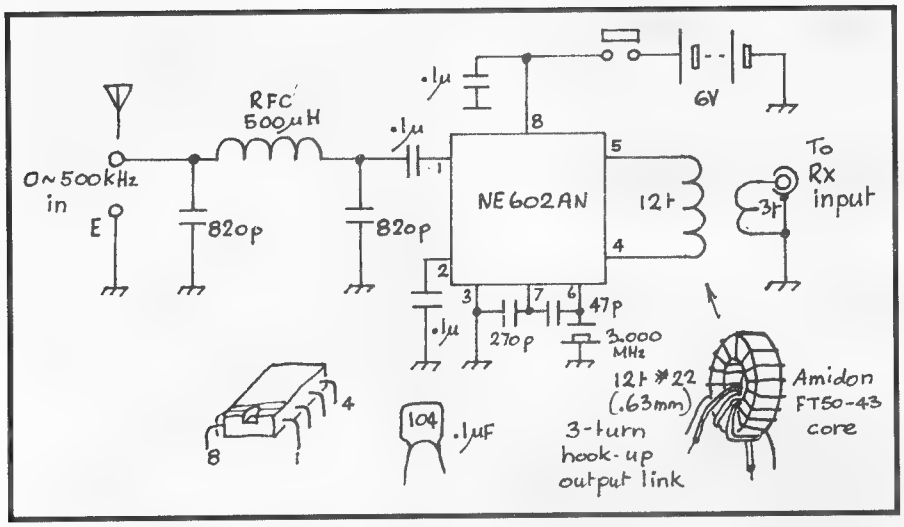

Figure 1 — Circuit diagram of the LF converter.

Input and output networks are untuned, and there are no adjustments to make. Current demand from a 6 V supply is only 2.5 mA, hence battery operation from a set of 4 pen-light cells is a good plan. Maximum specified supply for the '602 is 8 V.

Construction

The NE602AN chip is inserted into a wire-wrap socket, which in turn is soldered to a pad-board (see Ref 5) substrate attached to a piece of circuit board measuring 65 x 50 mm. 3 and 4 MHz crystals are available "off the shelf" as cheap computer units (although the 3 MHz is dearer). Either frequency, or perhaps a slightly higher round-numbered one which suits your receiver's range, such as 5 or 6 MHz, is suggested. However, 3 MHz is recommended, because there are not (in VK3 at present) a lot of powerful signals in the 3 to 3.5 MHz range which may "break through" into this IF.

Circuit board and battery may be accommodated in a small metal or plastic box, with suitable connectors as shown.

Operation

Use a coax lead to connect the output of the converter to the input of your receiver. Background noise should increase just a little when the converter is switched on. Tune the receiver to the crystal frequency (zero reference or 0 kHz), where a moderately strong carrier should be noted. Connect a wire antenna to the converter input. At these frequencies a short antenna of a few tens of metres merely forms a non-resonant voltage probe. Even a wire of only a few metres will bring in many signals.

As mentioned above, mentally subtract your crystal frequency from the positive dial reading to obtain the actual receive frequency. Down near 10 kHz (if your home is like mine) you will hear a mish-mash of buzz from all those horrible switch-mode power supplies and TV sets in the area. But above about 200 kHz, the smog should clear a little and allow the beacons and other signals to be tuned.

Beacon signals have been received here from many parts of Victoria, southern NSW and King Island (KII) on a 10 m length wire antenna. A separate earth connection (that is, independent from the mains earth supplied by the receiver connection) may or may not improve the signal to noise level, so give it a try.

References and Further Reading

1. *Tune in on the New Frontiers of VLF — Curry, 73 Amateur Radio, June '90.*
2. *A Bandwidth Limiting LF Up Converter for Around 200 kHz — Butler, Amateur Radio Dec '93.*
3. *The Bandwidth Limiting Converter Simplified — Butler, Amateur Radio Jan '94.*
4. *Modifications to the Bandwidth Limiting Converter to include VLF — Butler, Amateur Radio Mar '94.*
5. *"Paddyboard" Circuit Construction — Diamond, Amateur Radio Feb '95.*

*45 Gatters Road, Wonga Park VIC 3115

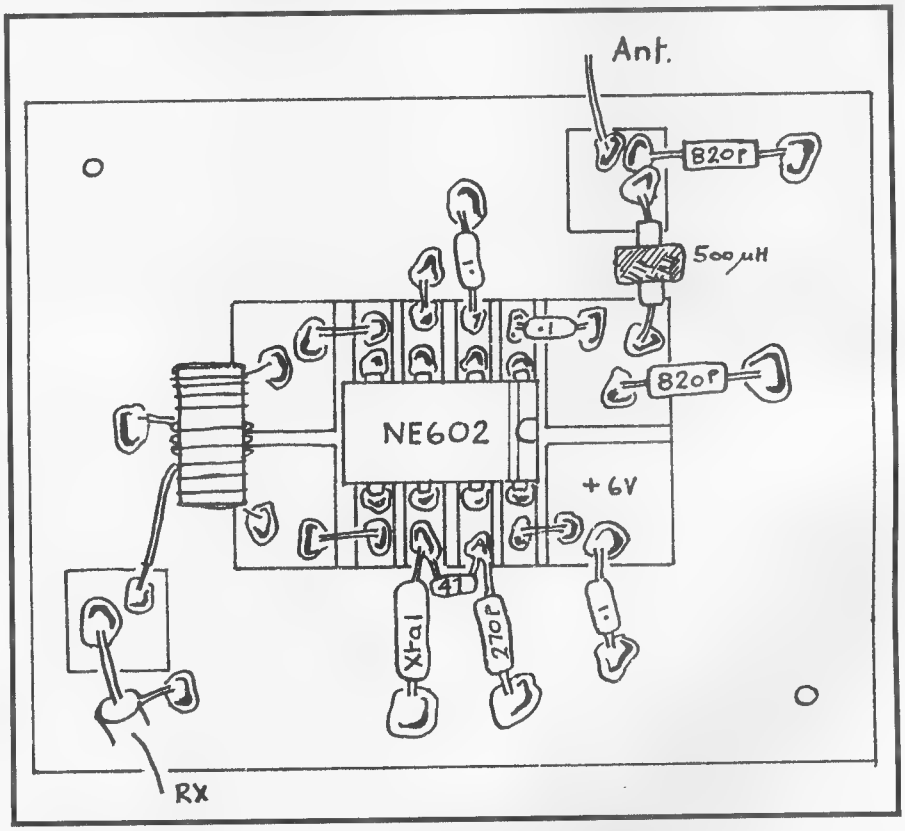

Figure 2 — Circuit board layout for the LF converter.

Technical Abstracts

*Gil Sones VK3AUI**

Electronic Key Callbrator

A simple circuit by Terry Grice G4PSL to allow the accurate calibration of the speed of an electronic keyer was published in the **Radio Society of Great Britain's** monthly magazine *Radio Communication,* September 1995. The circuit counts 512 dots from the keyer and triggers a beep. By timing the long string of dots the keying speed can be determined quite accurately. The timing of the dot string is done with your wrist watch or a stop watch. At 50 wpm the accuracy can easily be better than two per cent.

The circuit is given in Figure 1. IC1 is a CD4040B 12 stage binary ripple counter. IC2 is a quad two input Schmidt NAND gate type CD4093B. The input from the keyer is passed through a debounce circuit comprising R1, R2, and C1. After 512 dots have been received the circuit pulses a piezo buzzer to give a beep for approx 250 mS.

The equation for determining keyer speed is WPM = 1227.6/time measured. The times for a range of speeds are given in Table 1.

Construction should be fairly simple and the components are relatively non-critical. You could make a PCB but ugly construction or strip board would be quite adequate. The piezo buzzer BZ1 is non critical and any small piezo buzzer will do. The nine volt battery shown as a PP3 is a standard 9 V transistor radio type 216 or similar.

Search for Extra-Terrestrial Intelligence (SETI)

SETI has been around for some time. It commenced over thirty years ago and is based on the idea that we are not the only life and civilisation in the universe or in our galaxy. There have been many searches but as yet no definite positive results. The search area is vast and a lot of time and effort is required.

The SETI League has been formed in the USA to help coordinate efforts to search the skies for signals. An article in the **American Radio Relay League's** monthly magazine *QST,* August 1995 gives some information concerning the search and the coordination efforts. The author of the article is H Paul Shuch N6TX, who is Executive Director of the SETI League.

Table 1

WPM	Time Measured
10 wpm	123 seconds
12 wpm	102 seconds
15 wpm	82 seconds
20 wpm	61 seconds
25 wpm	49 seconds
30 wpm	41 seconds
35 wpm	35 seconds
40 wpm	31 seconds
45 wpm	27 seconds
50 wpm	25 seconds

Basically the idea is to coordinate individual efforts searching for signals. You do not need the Parkes Dish — a relatively modest setup is capable of providing useable input to the search. The main idea is to coordinate many individual efforts so that they complement each other and do not merely cover the same ground.

The search is concentrated on the 1420 MHz to 1660 MHz region which has been dubbed the water hole. This is the region between the hydrogen and hydroxyl lines.

Equipment requirements are modest and are as follows:-

A three to five metre satellite type dish; a low noise preamp for 1.4 to 1.7

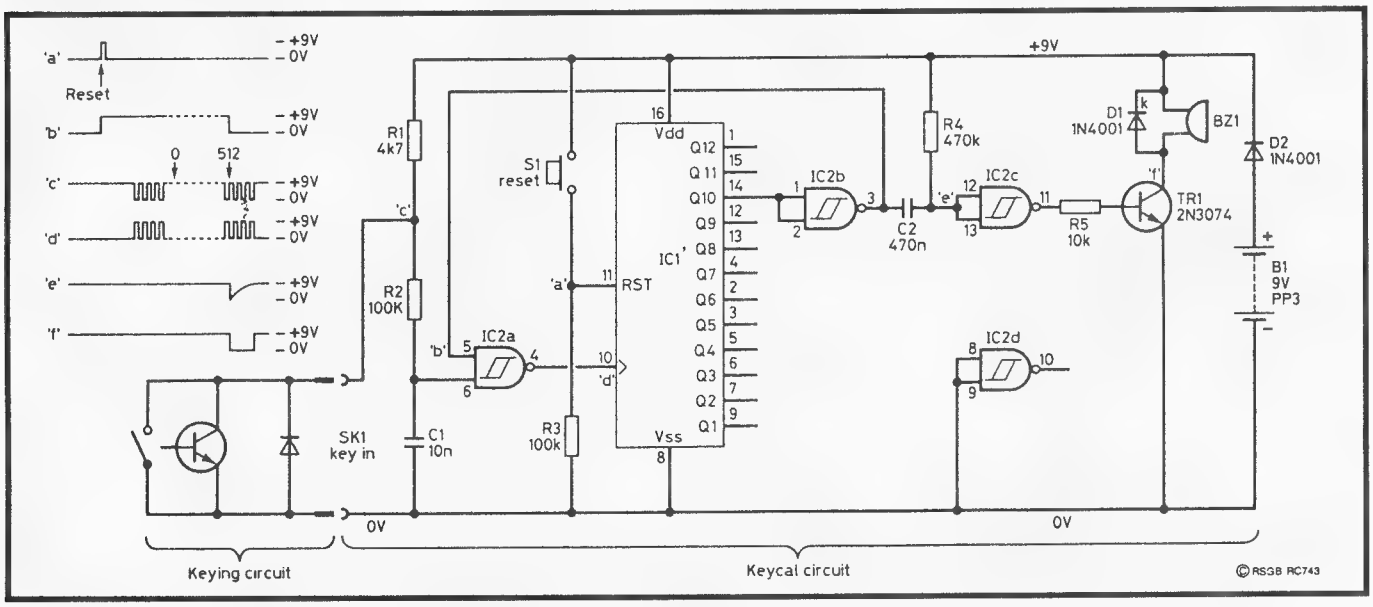

Figure 1 — Keyer Callbrator. IC1 is a CD4040B; IC2 is a CD4093B.

GHz; a down-converter to IF range; a VHF scanning receiver; DSP, spectrum analysis software and a PC.

Information regarding SETI and coordination is available from the SETI League via e-mail to info@setileague.org. Alternatively, a letter to the author of the *QST* article H Paul Shuch N6TX at PO Box 555 Little Ferry, NJ 07643 may be useful. However, if writing, please remember to include a return envelope and the means of return postage, either as green stamps or IRCs. The costs of postage are heavy, particularly for any volume of mail.

If you are interested in SETI then I would recommend obtaining a copy of August 1995 *QST,* which is available for purchase from Daycom Communications Pty Ltd and from some libraries. The article provides some leads to further reading for those interested in SETI.

Weatherproof J Pole Antenna

In the July 1995 issue of *QST,* Dennis Blanchard K1YPP describes a J pole antenna enclosed in a PVC pipe radome. The interesting thing is the use of a foam insert to hold the antenna, made from twin-lead, centrally inside the PVC pipe.

The antenna is constructed from windowed twin-lead which is then secured within the PVC pipe by a foam insert. The foam insert is a length of the split foam used as lagging for pipes. This foam is available locally in appropriate lengths. The pipe used as the radome is a PVC pipe of 1.5 inches diameter. This would translate to a 38 mm pipe, or thereabouts, locally. Short lengths of such pipe are available in hardware shops together with suitable fittings to close the ends.

The antenna construction is shown in Figure 2. Suitable dimensions for 300 ohm twin-lead of 0.85 velocity factor are given in Table 2. With a little experimentation the more robust 450 ohm line could be used. With all such experiments, cut the antenna a little long to start with and then prune it back. The antenna will be low in frequency and you will be able to work out how much to trim it to get it onto frequency. The coaxial socket is let out through a hole in the pipe and would need to be sealed to prevent ingress of moisture.

Table 2 — J Pole Section Lengths

Frequency MHz	D Total Length (in)	A (in)	B (in)	C (in)
50.0	160.4	3.2	48.2	112.2
51.0	157.2	3.1	47.2	110.0
52.0	154.2	3.1	46.3	107.9
53.0	151.3	3.0	45.5	105.9
54.0	148.5	3.0	44.6	103.9
146.0	54.9	1.1	16.5	38.4

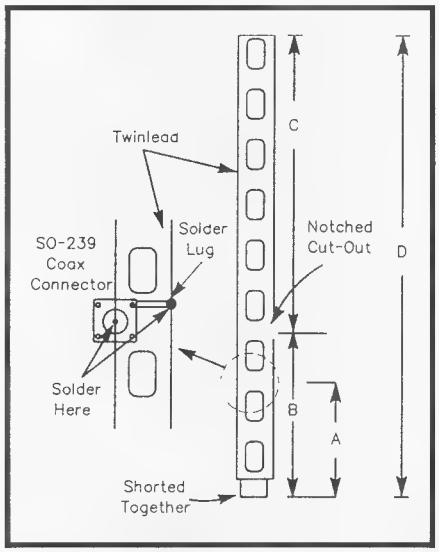

Figure 2 — J Pole Construction. See Table 2 for lengths.

A worthwhile addition would be a choke in the feedline as recommended by VE2CV. This could be formed by coiling up the feedline to form a choke or by using some ferrite beads slipped over the coax near the feed point.

A means of trimming the frequency of a 6 metre J pole was mentioned in the article. This was to wrap a 1 inch (25 mm) strip of aluminium foil around the lower section of the PVC pipe. This acts as a capacitor and can be positioned so as to change the resonant frequency of the antenna. It can be held in place with tape. This allows the antenna to be temporarily used in a different part of the band.

The Octopus

A simple tester can be built which uses a cathode ray oscilloscope as the display to test a variety of components. There have been several versions of this tester, including a variety of commercial designs of varying degrees of sophistication. The name is derived from the way the device looks. The basic idea is to use an oscilloscope to display simultaneously the voltage current curve of a component.

The circuit comes from 73 *Amateur Radio Today,* August 1995 issue, in which Craig Faith KB5RMZ described the device. A similar device was described in the November 1991 issue of *RadCom* by Mike Dawson G3TCL. The *RadCom* article described a somewhat more complex

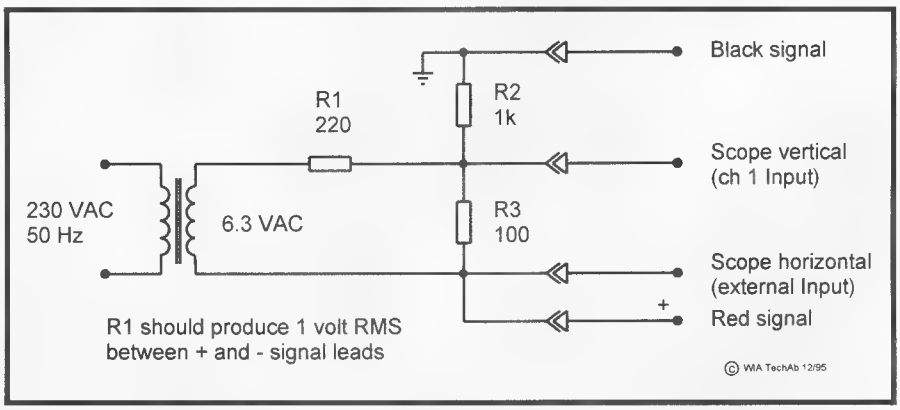

Figure 3 — The Octopus.

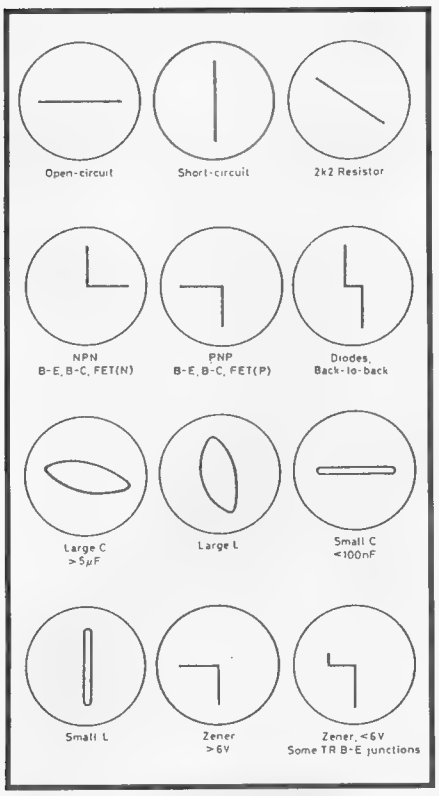

Figure 4 — Traces from different components.

device and provided a wider range of typical displays.

The circuit from *73* is shown in Figure 3 and consists of just three resistors and a transformer which provides a 6 volt AC source. The curves which come from *RadCom* are shown in Figure 4.

Use with components in circuit may lead to some complex traces as the components will not be isolated, but the results will be useable. To display zener diodes, a higher voltage source will be needed, but be careful as some other components may not welcome the increase. Also, be careful with sensitive and small components. The tester provides a test voltage of about 2 VAC, which is around 6 volts peak to peak. The current is around 3 mA peak. Most components can handle this, but be careful with small and delicate parts.

In use, adjust the horizontal deflection with the test leads open. Then short the test leads and adjust the vertical deflection. The tester is then ready for use. Test some known components first so that you have an idea of what the display looks like.

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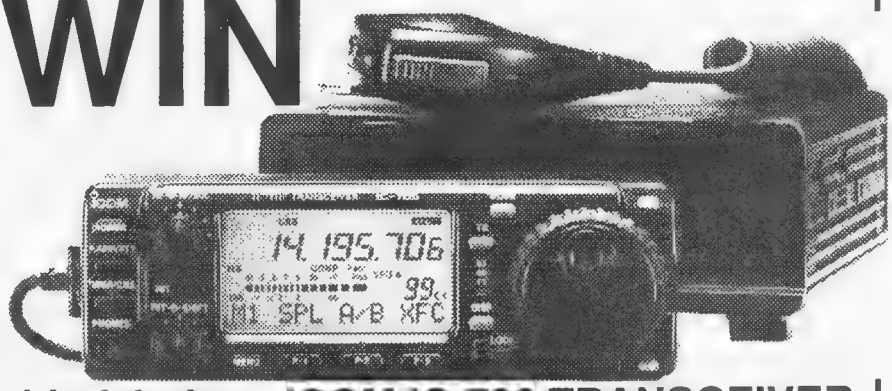

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- current members who are on a 3-year membership
- life members
- all grades of membership

Encourage others to join
so they, too, can enjoy the many benefits of membership – monthly *Amateur Radio* magazine, representation to state, national and international authorities, QSL bureau services, etc.

The prize will be awarded by way of a draw, the result to be published in July 1996. It will be presented to the winner at the earliest opportunity following the draw.

ICOM IC-706 FEATURES

- Covers all HF bands, 160-10m, plus 50-54 MHz, 144-148 MHz
- Continuous receiver coverage 30 kHz-200 MHz
- All modes: SSB-CW-RTTY-FM-AM, all bands
- 100 watts 160-6m, 10 W 2m
- Compact – 167 (W) x 58 (H) x 200 (D) mm
- Detachable front panel
- 102 memories
- Four types of scanning
- VOX, speech comp., NB etc

IC-706 kindly donated by Icom (Australia) Pty Ltd, 7 Duke St, Windsor , Vic 3181. Ph: (03) 9529 7582. Fax (03) 9529 8485.

The WIA trusts any not-yet-licensed Associate member who may win to make responsible use of the equipment.

WIRELESS INSTITUTE OF AUSTRALIA

WIA News

Heard Island DXpedition in Jeopardy

A group of eight amateurs from six countries around the world, who spent the past 18 months organising a joint amateur radio and scientific expedition to Heard Island, were left stranded without a vessel just as the expeditioners arrived in Australia in late October.

Heard Island, one of Australia's Antarctic territories located in the Southern Ocean about 53 degrees S — 75 degrees E, between Perth in Western Australia and Enderby Land in Antarctica, is one of the "most wanted countries" among the world's HF band DXers.

The eight expeditioners, who had obtained all the necessary licences, permits and clearances from Australian authorities, including the Antarctic Division, planned to spend some weeks on Heard Island from mid November to early December. Like the September Easter Island/Salas y Gomez DXpedition, in which some of these expeditioners were also involved, Heard Island was planned as a multipurpose, multi-disciplinary project involving natural science, amateur radio and state-of-the-art computer-based communications. A major goal was to implement new techniques for using available high technology to enhance communications from remote sites, to document and monitor local marine life, and to conduct radio propagation experiments. They brought equipment to Australia to send data and information from Heard Island via satellite, to be distributed world-wide via the Internet, including daily QSLing. A book, a documentary film and many major newspaper and magazine articles were planned as a follow-up to the Heard Island expedition.

Three of the would-be expeditioners are from the USA, the others are from Belgium, Holland, Switzerland, Japan and Russia.

The loss of the vessel, which disappeared from the Port of Cairns in Queensland, has serious international ramifications for Australia. The expeditioners have not been able to recover more than $AUS165,000 which was paid up-front to secure the vessel, and pay for shipping and other services.

Contributions and sponsorships for the Heard Island expedition have come from all over the world. The expedition was to sail for Heard Island from Fremantle on 1 November. Some 50 m³ of equipment had previously been shipped to Australia and was ready to be loaded aboard the charter vessel, the Tallarook, chartered from K&DM Transport Pty Ltd of Glenroy, Victoria, trading as Pioneer Cruises.

At the end of October, when the expedition advance team of Ralph Fedor K0IR, Bob Schmeider KK6EK, Peter Casier ON6TT and Arie PA3DUU arrived, the Tallarook was in a repair dock in Cairns. Two team members flew to Cairns and when they confronted the proprietor of K&DM Transport, Mr Kris Mitchell, and inspected the Tallarook, they apparently found the vessel did not comply with the requirements of the Australian Maritime Safety Authority, it was not of the size expected, its generator and desalinator were not working, the deck appeared to leak, the promised deck crane and landing craft were not installed and the vessel could not then move under its own power. The expeditioners claim they had been assured by K&DM Transport that the Tallarook's range was 5000 miles when it appears to be 900 miles.

Numerous faxes and telephone calls to and from Mr Mitchell, before the advance team arrived in Australia, had assured the expedition the vessel was seaworthy and adequate for the voyage, they said.

The expedition advanced funds to K&DM Transport to pay shipping charges from the USA for a 20 ft sea container of part of the expedition's supplies. Apparently this has not been paid and the expeditioners now have to cover the charges to recover their equipment. In addition, supplies K&DM Transport had agreed to obtain for the expedition have apparently not been bought.

After the arrival in Cairns of the expedition advance team, Mr Mitchell made rudimentary repairs to the Tallarook and left the Port of Cairns, they said. The vessel was last reported off the East coast between Cairns and Brisbane. The Australian Federal Police fraud squad has been notified, but without result so far.

The Heard Island expeditioners are trying to reschedule their project and to find another vessel to re-start the expedition in January. This has meant enormous disruption to the personal and working lives of all the expeditioners. They have been unable to recover the $AUS165,000+ paid to Mr Kris Mitchell, who has not been located. The expeditioners are seeking further sponsors for fuel and food.

While the drama of the Tallarook was unfolding, several more expeditioners arrived in Australia. All but Ralph Fedor K0IR have since left Australia, disappointed but determined to salvage something of the project. Ralph K0IR is travelling the Eastern states to see what can be done.

When it became apparent in late October that the Tallarook could not serve the expeditioners' needs the WIA Federal organisation, through President Neil Penfold VK6NE, become involved in an effort to assist the expeditioners. Contacts with the shipping community, obtained through the assistance of Federal Media Liaison Officer Roger Harrison VK2ZRH, are being followed-up in an effort to locate another vessel. The WIA has issued a press release to the print and electronic media, alerting them to the Heard Island expeditioners' plight.

Antennas

DX Vertical — Up or Down

Adrian Fell VK2DZF presents yet another interesting antenna article.*

Many amateur radio operators would never consider using a vertical antenna of any sort. But those of us who have used a vertical antenna know how well this type of antenna can work. Take, for example, a typical HF mobile whip mounted on the vehicle. This is far from ideal but it is amazing how well this antenna can work. The vertical is renowned for unwanted pick-up of noise, particularly the man made type or QRN. Also, because its radiation pattern is omnidirectional, interference from other transmissions, QRM, is also a risk.

An experimental 20 m ground plane using fishing line guy wires. The small coil is the loading coil with a link for the feeder.

Well, that may be all true, but, on the other hand, the vertical still has a lot to offer and should be considered for good DX performance, especially using CW, simplicity and low cost.

The word "vertical" will probably mean different types to each reader. Maybe a commercially made multi-band antenna, or the trusty old ground plane. But, whatever the type, I wonder how many hams use a quarter wavelength long vertical with the feedpoint sitting at ground level? Not many, I bet! Well, I do and I just love it.

There are a few problems when a quarter wavelength radiator is located close to the ground. One is that RF wants to travel in the earth where the other quarter wavelength of the antenna should be. This may work if the area under the radiator is conductive, such as very moist soil. But, with dry and poor conductive areas, poor performance will result.

This type of vertical, worked in conjunction with the ground, was called the Marconi after its creator. A way to reduce losses and improve efficiency is to lay out on, or just under, the soil some radial wires spanning out from the base of the vertical. These wires should preferably be 0.2 of a wavelength long with some at 0.4 wavelength, if space allows. There could also be some shorter in length, eg 0.1 wavelength, which is an advantage closer to the feedpoint. Opinions will vary as to how many radials should be used and some will say the whole exercise is a waste anyway but, as the author had already put a total of 80 down prior to turfing, these were put to good use.

Later, another 40 were cut for the 20 m band and added to the same radial system. These can be slotted into the soil, after a spade slot is dug, with the wire pulled taut and pushed into the slot. If the soil is damp or wet it will be a lot easier and any convenient type of wire can be used. A mixture of old coil and solid copper mains wiring was used by the author. The purpose of the radials is to get the RF to travel into these wires, not the lossy ground.

It can be seen why the elevated ground plane antenna has become so popular because, as the height of the radiating element is moved up away from the ground, less and less radials are required as the influence of the ground decreases. Again, opinions will vary as to how many radials should be used with a elevated GP but, with the feedpoint at about one quarter wavelength off the deck, four radials is a popular choice with hams around the world. The author has progressed from two to three and then eight (see later section), the aim being to get a good RF ground that the current wants to travel in rather than the ground itself.

With a ground mounted vertical there are other ways to reduce losses. For example, the radiating element could be made longer, up to a maximum of five eighths of a wavelength. This puts a lot less demand on the ground radial system. One could even use a half wavelength long element, where no ground radials are required at all except, maybe, a small counterpoise connected to the coaxial cable braid.

All these lengths longer than a quarter wavelength will have a higher feedpoint impedance, and some reactive properties as well, which means some sort of electrical network at the feedpoint is required to match a 50 ohm feeder cable. These longer radiators have been avoided for that reason alone, plus experiments in the past have favoured the shorter quarter wavelength. A 3/4 wavelength is a length that does not require any network at the feedpoint but, as any length over 5/8 of a wavelength will have all or some radiation at a high wave angle, this will not favour any long distance DX stations. Their signals arrive at low angles.

The wave angle is supposed to go even lower, desirable for DX, when the vertical is at these lengths, not 3/4

wavelength, giving the antenna some signal gain over the shorter 1/4 wavelength. Whether this extra signal gain is ever realised in practice is another matter.

Constructing an antenna to extend to these lengths can be a problem for most, especially on the lower frequency bands. It has been my experience that a quarterwave long antenna seems to work as well as the longer alternatives, at least at this QTH.

One reason why the elevated ground plane antenna works so well is that, by moving the typical quarter wavelength radiating element away from the ground, the losses are reduced quite considerably. Therefore, a lot less radials are required to achieve the same results. The radials are usually made to a quarter wavelength, completing the other half of the antenna. However, there is a risk that RF will couple into the coaxial cable feed arrangement and thereby cause TVI. It may even cause the radiation angle to become higher than it would be otherwise because the feeder becomes part of the antenna and is radiating.

The number of radials required will depend on the height of the antenna above ground level. As mentioned previously, four is a number that is very popular with amateurs. But I have found that even eight did not do justice to a design for the 20 m band, with the feedpoint at a height of seven metres, compared with the ground mounted vertical. In any case, installing an RF choke at the feedpoint would be a good idea and this can be done by winding the coaxial cable through a suitably sized toroid for three or four turns if an elevated GP is used. A better alternative may be to try a current balun, which is all the rage these days.

The RSGB publication, *HF Antennas for All Locations* by Les Moxon G6XN, indicates that a much better approach is to use a single, non-resonant radial which is loaded by a coil to which the feeder is coupled. I did build such an antenna (see photo) and, from memory, it did work well with low noise pick up on receive. But this was many years ago now and this approach has not been pursued since.

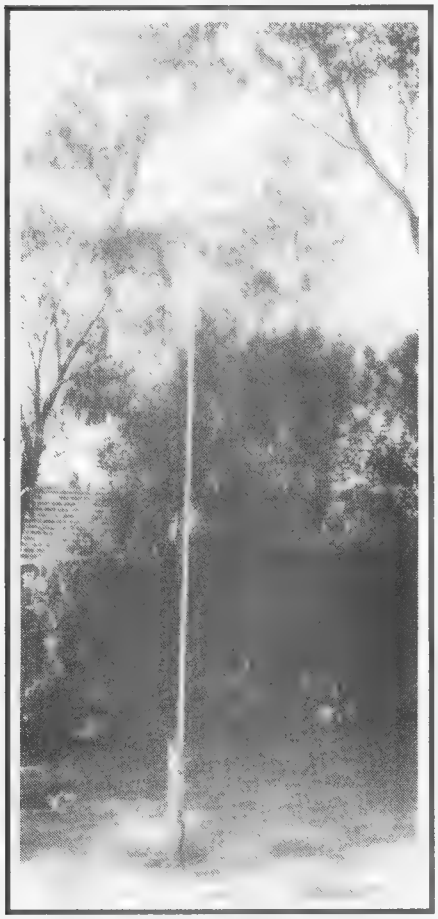
For comparison tests against the ground vertical and the GP, I constructed an inverted vee antenna. This was then hauled nearly 20 m high in a gum tree. This V was run in parallel with an 80 m V using the same feeder cable. There was a one to one balun installed at the feedpoint.

On receive the inverted V was the quietest (a bit too quiet for my liking) and had the advantage with some signals from Japan and New Zealand. A lot of VK stations were best on the V, also, but this could vary depending on conditions and direction of signals. At no time did this V, at nearly 20 m high, out receive any of the verticals with DX stations. At times it was inferior to the ground mounted vertical for DX and it was on a par with the GP seven metres high for DX.

The GP seemed the noisiest of all the antennas on receive but it sometimes received some local (25 km distant) VK stations better than the ground vertical, probably due to

The base of the ground level vertical for 20 m with the 120 radials hidden by the grass. The aluminium ground section is driven over a water pipe ground rod. The U-clamp is connected to the radials. The RG213 coax is run underground inside hose pipe which protects the cable from the mower, etc. A lightning arrester is fitted on the SO239 coax socket.

Support the WIA in order to protect amateur radio frequencies



The ground mounted 20 m vertical antenna.

a different higher wave angle or building or ground reflections. On comparison transmission tests done to Europe, New Zealand, and Japan, no stations could detect any difference between any of the antennas at their end. This could be due to fading, QSB of the signals, or it could be a confirmation of comments made by somebody else before, that all single element antennas perform the same. Whatever the reasons, the big difference was on receive and, at the end of the test, I had to make a decision. Overall, I much preferred the ground mounted vertical. It also looks much neater in suburbia with all those ugly radials out of sight.

With the antenna at ground level it is very easy to take out sections of tubing to resonate the vertical at either 10, 15, or 17 m. If this is envisioned, then some radials cut for these frequencies could also be laid under the ground. I purchased a Station Master 27 MHz vertical, second hand, for $30. The coil was removed, the aluminium cleaned with fine steel wool and the length was adjusted for 20 m.

*PO Box 344, Baulkham Hills NSW 2153

BT

■ Humorous

How to ... Trouble Shoot a Complaining Neighbour

Steve Bushell VK3HK presents a different approach to interference complaints, but one which may have some limitations?*

If you are one of those people who transmit radio signals and perhaps experiment with antennas, then the likelihood of an encounter with an irate neighbour at some stage (generally at peak viewing time) is high on the order of possibilities.

Prior to this visitation it is best to be rehearsed in some tactic of self preservation (forewarned is forearmed), as to be caught with one's guard down can lead to a long involvement with TV sets, stereos, organs, intercoms, garage door and gate controllers, etc other than your own.

To begin with, it should be kept clearly fixed in your mind that, under no circumstances, should you admit liability for anything; and that any references to "interference" should be corrected and the term DISTURBANCE proposed instead!

The giving of names, call signs, operating times and wavebands, power levels and equipment in use, must be avoided.

The visitor should be allowed to express fully and uninterrupted his dissatisfaction with you regardless of time required or his intensity of presentation.

Upon cessation of this display of disgruntlement you should immediately and forcefully put to him the suggestion that the disturbances to which he has alluded if, in the off chance, they did emanate from your station, are certainly of a confidential nature and that it is in fact he, not being in possession of an amateur radio licence, who is at fault in having unlawfully intercepted such transmissions. And further, that it is an offence under the Radio Communications act to do so.

Before the caller has a chance to regain his equilibrium, your position should immediately be reinforced with the further approach that entertainment equipment, such as that employed for his relaxation, is obviously not intended for reception of short wave transmissions and must therefore be either defective or inadequately designed in having done so. Especially as there is not the slightest problem with your sets or, for that matter, any other neighbours you have questioned as recently as that morning.

Having now absolutely destroyed your complainant's credibility, and established the likelihood of prosecution if further transgressions are reported to you, he should be dismissed with a casual but friendly note that, as a good neighbourly gesture, you will, in future, see your way clear to avoid operations on Sunday evenings from midnight to dawn.

At this juncture, I should point out, unless you are considerably larger than your pesky visitor, all proceedings should be conducted with you safely behind a locked security door.

*20 Allendale Crescent, Mulgrave VIC 3170

BT

Antennas

The Ups and Downs of TH3JR Repairs

Gerry Wild VK6GW explains how he fixed his tri-band beam antenna.*

I wonder how many of my fellow amateurs are having high VSWR problems with their Hygain TH3JR beams and are unable to resolve them?

Following is an account of my own trials and tribulations but, before I start, here's a brief description of the construction of the TH3JR. Each of the three elements of the beam carries four parallel-tuned traps consisting of an inductor wound on a plastic core surrounded concentrically by an aluminium capacitive section. This tube is held away from the inductor by four plastic rings, and is secured by a screw at one end to the beam element (see Fig 1).

A fellow amateur had one of these beams which was exhibiting a VSWR in excess of 3:1 on all bands, so it was decided to attempt a repair. Each trap was disassembled and examined carefully with the cause of the trouble soon being found. Numerous insulator rings on the driven element were found to be cracked or burnt away, leaving a carbon track to short out the capacitive section. These rings were replaced, all connections cleaned and tightened, and the result was an antenna in good working order.

However, a couple of weeks later, my own TH3JR developed a high VSWR which was causing my TS130 to switch to reduced power. The beam was duly lowered and the traps stripped down. As previously, some burnt and broken rings were replaced on the driven element. Tests were satisfactory and everything stayed fine for about a week or so until the problem re-occurred. This time, however, it was intermittent.

Being quite confident of my previous repair, I suspected the coaxial cable or its connector, both having been up for some time. Replacing them made absolutely no difference; in fact, the fault was now permanent. The only thing left was the balun which was duly taken apart and found to be in perfect condition.

By this time I was completely baffled, and so decided to completely disassemble the antenna. It was not until I opened the last trap on the driven element that the cause of the problem was revealed. Inside the capacitive section and lying across the inductor were the remains of a large caterpillar which had acted as a short circuit.

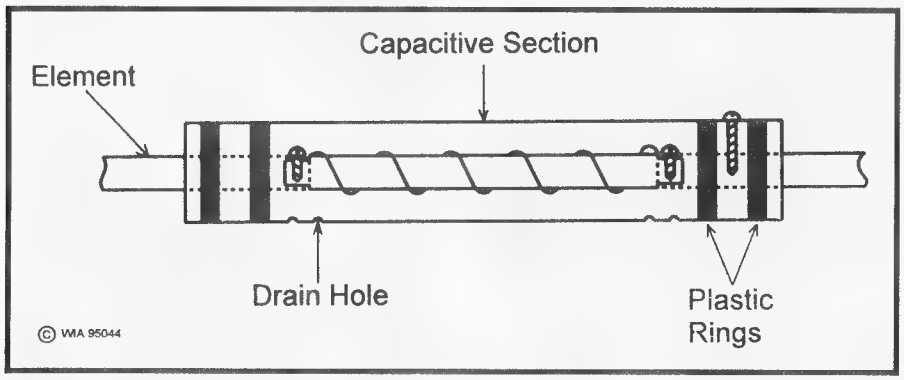


Figure 1 — Hygain TH3JR trap.

Drilled into each capacitive tube section are four 4 mm diameter holes for drainage which are supposed to face downwards. Quite obviously they had allowed the caterpillar to make its home there after my initial repair.

My advice to anyone with a similar VSWR problem is to:

1. carefully examine the plastic insulator rings, especially on the driven elements, for carbon tracking;
2. clean all inductors and connections and tighten screws carefully; and
3. seal all hardware with silicon rubber and put a light smear across the trap drain holes (you might just save yourself a lot of pain).

Technical Editor's Note

As an owner of a TH3JR for almost 20 years I have had similar problems over the years. In my case, I used to suffer high VSWR after heavy rain storms. It could take several days for things to dry out by which time the VSWR would return to normal. I found that the moulded plastic "boots" over the ends of each of the traps were disintegrating due to age and were allowing the water to enter from each end of the trap. As above, the effect was most dramatic on the driven element. My solution was to purchase suitable diameter heat shrink tubing (blue in my case), cut it into about 50 mm lengths and shrink it onto the end of each trap. The tubing has been in place for more than five years now with little or no sign of deterioration.

Another problem suffered after a particularly stiff breeze (more than 100 mph) hit the antenna, was severely swept back elements. This was in addition to a bad case of droop that the elements were starting to show anyway. The solution to both of these problems was to carefully straighten the bent sections (at the boom end of the element) and then insert approximately one metre lengths of aluminium tube inside the damaged section. The aluminium tube used is available from Alcan who make a range of tubes that fit neatly inside each other. Choose the one that just fits inside the element to be repaired. A single pop rivet in the element to hold the inner section in place completes the repair. Now it can accommodate a whole flock of magpies without looking too droopy and has been doing so for the past 12 years since the repair.

**1080 Great Eastern Highway, Glen Forrest WA 6071*

ar

ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

ALARA wishes all members, YLs, OMs, harmonics and everyone else a very happy Christmas and New Year. And, just to spoil your fun, a reminder that subscriptions are due (Treasurer's address below).

New Members

Ann ZL1ANN joined 29 August, sponsored by Elizabeth VK3NEP. Mabel GI8SXN joined 22 September, sponsored by Jean Shaw. Additions to the membership list, Christine VK6ZLZ and Elizabeth VK3NEP.

New members are always welcome, so if you would like to join ALARA; used to be a member but have let your membership lapse; changed your address and not let the treasurer know the new one; or would just like more information, drop a line to the ALARA Treasurer, Margaret Schwerin VK4AOE, PO Box 758, Dalby Qld 4405.

Overseas

Mabel GI8SXN has recently taken on the position of BYLARA DX Co-ordinator for sponsors. She can be contacted through our local Sponsorship Secretary, Gwen Tilson VK3DYL, 3 Gould Court, Mount Waverley, VIC 3149, or on packet at VK3DYL@VK3KSD.

Aola ZL1ALE has just managed to work the last country she needed on SSB and has now caught up with OM Dave ZL1AMN. Well done Aola.

Dawn ZL2AGX reported birds skating on the bird bath in July. With the cold and gale force winds, she was glad to welcome Spring. She enjoyed a trip on a mail boat around the islands and coast of South Island.

Chris ZL1BOW also visited South Island, but returned to a house of disasters when the gas fire would not work, the water bed burst, and the washing machine gave up the ghost.

Judith ZL3AGE was also glad to see Spring come after a very wet winter. Maxie DJ4YL and her sister Marile visited Australia in September and October. Christine VK5CTY sponsors Maxie and they were able to meet for lunch.

Vicki VE7DKS is Editor of the Clarion again and welcomes any news from VK YLs. She also collects stamps so, if you write, put a good collection on the envelope for her. Barbara V85BJ, Brian V85EB, Judy and Robin attended the VK6 August luncheon in Perth, and showed everyone their photographs of Brunei.

ALARAMeet

Raija SM0HNV is planning to be in Perth next September. So far members from five overseas countries have indicated they will be attending.

At Home

ALARA now awards members with an attractive certificate in recognition of continuous membership each five years. It goes up to forty-five years. If you manage more than that you deserve a medal! Thanks to Awards Custodian Jessie VK3VAN, and Gordon VK3GB who produced the certificate.

ALARAMeets Past and Present Castlemaine 1993

With an attendance of eighty this was the biggest meet ever. In spite of cold wet weather on the Sunday and a problem with the official photographs (have you ever heard of anything being organised where there are no hiccups?), everyone had a wonderful time and the whole event actually made a small profit (as did the meet in 1990)! Margaret VK3DML can now hand over the books and go to Perth next year and really enjoy herself.

Perth 1996

Bev VK6DE is taking names and addresses of members planning to attend. Write to Bev Hebiton VK6DE, PO Box 299, Geraldton WA 6530. Tourist information packages will be sent out around April/May to assist those planning their trips. Bev will publish a list of accommodation close to the venue in the January *Newsletter*, and recommends early booking. Monday, 30 September is a public holiday and an extra tour may be arranged for members who wish to spend another day in Perth. Let Bev know when you contact her.

News from the Members

Bev VK6DE and OM Brian have been four-wheel-driving around the West and report that the wild flowers are lovely this year. Bev and Brian have a granddaughter, Jennifer Dawn born 26 June.

Julie VK4JJB has been busy sewing, and talking to Robyn VK4RL on the two metre link between Bundaberg and Rockhampton.

Christine VK5CTY, family and friends have finally finished digging the hole for the septic tank on their bush block.

Gwen VK3DYL has been to Alaska and Canada. She checked into the YL222 net from the shack of John VE8EV in Inuvik, and met Ken VE8KM and John VE8JR at Cambridge Bay. She joined the YL222 net again this time from Ken's shack. In Calgary she caught up with ALARA member Joyce VE6JOY. In Vancouver she met Elizabeth VE7YL, after talking to her on air for almost fifteen years. From there she took the ferry to Victoria to meet Vicki VE7DKS and OM Jim, Muriel VE7LQH and OM Peter, plus Rose VE7KL and Hilda VE7FLN.

Mary VK3FMC met up with Maria VK5BMT in a rest area 73 km west of Wilcannia.

Marjorie VK2AMJ accompanied her retirement village choir when they sang for 700 people in the Sheraton on the Park in Sydney.

Maria VK5BMT and OM Keith covered 11,200 km on their last trip — definitely travel addicts.

**C/o PO Woodstock, QLD 4816*

AMSAT Australia

*Bill Magnusson VK3JT

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/– QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Daylight Saving

As indicated in the header box, the AMSAT-VK net time and frequency have been changed for the rest of the summer daylight time period. Until the end of March 1996 the net will commence at 0900 UTC on a frequency of 7.064 MHz. If you can't find the net on that frequency, look on the backup frequency of 3.685 MHz. It may have temporarily moved due to poor conditions on 40 metres.

SatLink Rev 951023

Jesse Buckwalter NZ3F has released a new version of his SatLink program. SatLink is a DOS based ground station control program which is designed as an alternative to the ubiquitous PB/PG. It is available from a number of sources. I downloaded it from the AMSAT/NA Internet ftp server. The address is ftp.amsat.org. Don't forget the "ftp" in the address line. The directory structure is /amsat/software/PC/pacsat and the files are sl951023.zip, sls51023.zip and satlink.txt. The program has copious help and if you are familiar with PB/PG it should be easy to configure and get going. It will be of particular interest to those digital satellite operators who do not have the hardware (or perhaps the desire) to wrestle with Windows.

AO-13 Engineering Beacon

With the impending re-entry of AO-13 it is essential for the control stations to collect telemetry data in order to calculate and extrapolate re-entry predictions. To facilitate this, the engineering beacon on 145.985 MHz has been turned on. The beacon is more powerful than the general beacon which has been switched off to conserve power. The engineering beacon is PSK only, it does not transmit CW or RTTY. So, dust off the old PSK demodulator and tune in!

MIR

I wonder if anyone has heard or worked the guys on MIR on the new 70 cm rig. Reports indicate that they have been heard over Europe and one or two people have made some kind of contact. The wide band radio and high speed modem are due to be delivered this month so keep an eye out for the voice repeater or the 9600 baud packet operations. A full frequency listing appeared in the October 1995 column.

Visible "Satellites"

Mountain-topping brings out the best in one. Sitting there a mile high in the alps under a magnificent black sky filled with stars. The camp fire has burned down to embers. One of the activities that this scene promotes is satellite watching. Just after dusk it is quite extraordinary to see the number of satellites that move across the sky. I recently downloaded some files from Internet giving keps for all the satellites which are currently visible to the naked eye.

Weather satellites like the NOAAs and METs are on quite large platforms and it is no surprise that they feature in the list. Of course there are no amateur satellites in the list. They are far too small. Some of the Russian amateur satellites were "hitch-hikers" on larger commercial/military satellites which rate a mention. On closer examination, an unexpected fact emerged. Most of the entries were for spent rocket casings, some of them associated with quite old launches. About 80 percent fell into this category. Most of what you see flying over is junk!

In many cases it's easy to tell the difference. Spent rockets will be tumbling out of control and will blink on and off whereas operational satellites will be stabilised and will be more steady in appearance. Not all visible satellites move across our sky. The geo-stationary satellites are there and visible for long periods after dark but they just look like stars. They can be brought out into the open by use of a simple 35 mm camera and tripod. Use a mild telephoto or normal lens, point the camera north and up at 45 degrees. Open the shutter for 5 minutes or so and...presto! The stars will have painted tracks on your film but the geo-stats will look like a row of bright stars.

Replacement For UNAMSAT Almost Completed

Following hard on the heels of the disastrous loss of UNAMSAT-1 earlier this year, David Liberman XE1TU reports that UNAMSAT-B is rapidly being made ready. He says that they are looking into three

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of October 1995.

L30918	MR J J COSTELLO
L30921	MR P ASH
L50333	MR A U KENNINGTON
L50334	MR M W JACKA
VK3FEN	MR C P CARROLL
VK3HAS	MR D HEATHCOTE
VK6BMO	MR G J A WORTHINGTON

The following new members have been advised by the office manager of the Queensland Division.

P Dawson	VK4EFX
W Marshallsea	VK4NW
RJ Thorn	VK4FH
J Ewing	VK4KEG
H Kiesinger	L40370
K Mitchell	VK4DKM
HJ Crosthwaite	VK4ZRA
G Metcalfe	VK4ELA
M Bowdidge	VK4NFX
G Scott	VK4SR
M Zuercher	VK4TMZ
T Sabastiani	VK4LED
P Cole	VK4CEO
R Hinds	VK4AAH
D Rickard	VK4ZDR

possible launches but as yet none has been confirmed. Also, they are reviewing all the hardware and improving a few of the circuits where possible. Recently they received a visit from France Cordove, Chief Senior Scientist of NASA, and a delegation of eight prominent NASA scientists, including Dr Tom Clark W3IWI. Their purpose was the laying of the first stone and dedicating the building which will become the Space Technology Lab at the Autonomous University of Mexico (UNAM).

Another Perspective on Squint Angle

A local discussion recently centred on the radiation pattern of the antennas on board UO-22, KO-23 and KO-25. I made some observations on KO-23 since this satellite seemed to be at odds with the others. Indeed, I found, and other locals confirmed, that KO-23 seems to be strongest just after AOS and just before LOS. The major lobe appears to pass through the ground station when the satellite is between 5 and 10 degrees above the horizon. It would seem to be squirting out its RF almost perpendicular to its vertical axis. A few minutes laying out the orbit geometry in TurboCad revealed this to be untrue. In fact, to meet this observed result the satellite antenna main lobe would be some 35 degrees from the vertical axis. This prompted me to determine just how we "see" the satellite as it passes over. At no time do we look at the satellite anywhere near edge-on. Even right out near the horizon we are still looking some 30 degrees from edge-on. The antennas we have come to expect on the UoSAT type satellites seem to have a more downward pointing main lobe. I wonder, does anyone have specific details of the antennas used on KO-23? The controllers acknowledge that it has this sort of radiation pattern and that it was a deliberate action on their part. I'd be interested in how they managed the 35 degree off centre main lobe.

**359 Williamstown Rd, Yarraville VIC 3013*
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352,3065

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AWARDS

*John Kelleher VK3DP — Federal Awards Manager**

Readers of this column will recall that I sent a fax to the ARRL, seeking answers to a query regarding the necessity of signal reports for DXCC purposes. I quote from a reply received from ARRL. *"Here is the text of DXCC rule 4 which concerns confirmation information. Confirmation data for two-way communications (ie contacts) must include the callsigns of both stations, the country, mode, and date, time, and frequency band. For DXCC purposes there is no direct notation for use of a signal report."*

This information came from Bill Moore NC1L, DXCC Supervisor, ARRL.

ZL2000 Award

The amateur fraternity is fast heading into a new century with the year 2000 rapidly approaching. To acknowledge this event, the Gisborne Amateur Radio Club of New Zealand have instigated an ANNUAL award until the year 2000, using the callsign ZL2000.

This award, to be known as the Gisborne 2000 Award, acknowledges the fact that Gisborne, New Zealand, is unique in being the first city in the world to see the sun rise on a new day, and the New Year. Gisborne will be the centre of attention for much of the world during the New Year period of the year 2000.

As this is an International award, it is therefore open to all amateur radio operators and SWLs. To achieve an Annual Award only one contact is required with the ZL2000 station during the month of January of that year. A special complimentary award will be issued to all stations that contact the ZL2000 station for four out of the possible years up to and including the year 2000.

One of these complimentary award recipients will receive a very special award in the year 2000, the details of which will be released at a later date. The cost of the annual award is $AUS5.00 each year.

All correspondence and award applications to Gisborne 2000 Award, PO Box 1017, Gisborne 3801, New Zealand.

Rules for ZL2000 Award

1. This award is available to all licensed amateurs and SWLs
2. Only one contact is eligible per year with one of the Gisborne stations using the ZL2000 callsign.
3. All operators using the ZL2000 callsign will be full members of the Gisborne Amateur Radio Club.
4. Any valid frequency may be used by either Phone or CW.
5. The contact can only be made during the month of January of each year.
6. The award commences 0001 hours (NZ time) 1 January 1996 (1101 hrs UTC 31 December 1995) and concludes 2400 hrs (NZ time) 31 January (1100 UTC 31 January) each year including the year 2000.
7. All valid contacts with ZL2000 will be sent a QSL card via the Bureau.
8. The award for each year will only be issued upon receipt of the application and registration fee.
9. The application and registration fee for the Award must be received before 30 June of the year that the contact is made.
10. A different pictorial award to be issued each year.
11. Any operator or SWL, gaining the status of having received four ZL2000 awards, including the year 2000, be issued with a complimentary award.
12. One amateur operator or SWL, having met the requirements of rule 11, will be chosen to receive a special award in the year 2000.

VI75RAAF

I am looking forward to receiving information concerning the VI75RAAF Award which is apparently being aired in March 1996. I would also appreciate input concerning local awards, for free publication in this magazine.

**PO Box 2175 Caulfield Junction 3161*

ar

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Club Corner

Hervey Bay Amateur Radio Club Inc.

Reg Wheller VK4PL, one of the founders of the Hervey Bay Amateur Radio Club Inc, at the club station operator's desk activating VI50PEACE.

The special event station, VI50PEACE, has been a great success. Warren Truss MP was instrumental in obtaining not only financial assistance for the club from the "Australia Remembers" Committee, which greatly reduced our outlay in the printing and postage of the awards, but also obtaining permission for the use of the "Australia Remembers" logo.

When the Club first applied for VI50PEACE some 12 months ago, we received great help from Ron Jenkins, the SMA Area Manager in Rockhampton, in obtaining the nine letter callsign, and that started the world-wide publicity campaign to as many radio magazine editors as we could contact.

The VI50PEACE event has been a great club effort with an overall final total of 10,672 contacts into 136 different countries. This total included 1,350 CW contacts into 48 countries. Not a bad result at the bottom of the sun-spot cycle and sort of proves that if you are prepared to keep on calling CQ, CQ you will get through.

Greg Taylor VK4OH
Publicity Officer

Riverland Radio Club Inc

Emlyn VK5AEJ

The Riverland Radio Club wishes to convey its grateful thanks to Emlyn VK5AEJ for his many years of dedication to the WIA and amateur radio.

Emlyn has spent many Saturday nights of the past 17 years or so broadcasting the Slow Morse practice sessions.

This has been very much appreciated by all amateurs, not only in VK5, but also those throughout Australia, especially those whom he has helped obtain their Novice or Full call CW, through his cooperation and loyalty to this great hobby.

Emlyn has now retired hoping someone else will take up the challenge. We wish Emlyn and his wife all the very best.

Doug Tamlyn VK5GA
Secretary

Radio Amateurs Old Timers Club (RAOTC)

Great News

Communication from the RAOTC committee to active Old Timer groups in VK6 by digital means has been established in a very satisfactory way through John Hill VK3WZ in Melbourne and Clem Patchett VK6CW in Perth.

Messages and news are already flowing.

Members will be saddened to learn that Joan, the wife of secretary Arthur Evans VK3VQ, passed away after a short illness on Wednesday, 1 November.

Allan Doble VK3AMD

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WIA News

Progress on Submission to Government on Amateur Licensing

At its meeting in Melbourne in October, the WIA Federal Council heard a report on progress of the submission to the Federal Government being compiled by Roger Harrison VK2ZRH.

The WIA was asked earlier this year by the Parliamentary Secretary to the Minister for Communications and the Arts, Paul Elliott, to provide the government with a submission on how the Amateur Radio Service might be better licensed, based on the value of amateur radio to the community. The government contacts said it was an open invitation, indicating that what was wanted was a detailed, well-argued submission and not *just* a further plea for reduced fees, the arguments for which were already well known.

A framework for the submission was subsequently accepted by the Federal Council and publicised through WIA channels and the packet radio network. Assistance and views were sought from the Australian amateur radio community. While the submission will cover aspects of the amateur licence fees, it has a much broader scope. This is a major undertaking and cannot be addressed in a few pages of simplistic argument on one or two issues. Assistance with material for the submission has come from the Victorian and Queensland Divisions of the WIA, from the Federal Office, a number of clubs, communications law specialists, the International Amateur Radio Union, the Scout Association, the Federal WICEN Co-ordinator and a number of state WICEN co-ordinators, along with many individual amateurs. All this input is greatly appreciated and has contributed usefully to development of the submission. It will not be the ideas of one person.

The time is drawing close when the submission will have to be completed. If you have something you'd like to contribute, particularly anything which might relate to how amateur radio benefits the community, or you want to know more about the working framework of the submission, contact Roger Harrison VK2ZRH, LMB 888, Woollahra NSW 2025.

Contests

*Peter Nesbit VK3APN — Federal Contest Coordinator**

Contest Calendar Dec 95 — Feb 96

Dec 1/3	ARRL 160 m Contest	Nov 95
Dec 9/10	ARRL 10 m Contest	Nov 95
Dec 27 — Jan 28	Ross Hull VHF/UHF Contest	Nov 95
Dec 31	Canada Winter Contest	Nov 95
Jan 1	ARRL Straight Key "Night"	
Jan 6/7	ARRL RTTY Roundup	
Jan 13/14	Australian VHF/UHF Field Day	
Jan 13/14	Japan International DX CW (Low Band)	
Jan 21	HA DX CW Contest	
Jan 26/28	CQ WW 160 m DX Contest	
Jan 27/28	UBA Belgium SSB DX Contest	
Feb 10/11	PACC CW/SSB DX Contest	
Feb 10/11	Spanish RTTY Contest	
Feb 17/18	ARRL DX CW Contest	
Feb 23/25	CQ 160 Metre SSB Contest	
Feb 24/25	RSGB 7 MHz CW Contest	
Feb 24/25	UBA Belgium CW DX Contest	

Writing this in early November, it's hard to believe another year has almost gone by! I'm not sure where all the time goes, but the daily treadmill just seems to get faster and faster, and before you know it, it's December again. It's the odd little things which remind you of the years going by, such as remembering previous conversations with workmates about superannuation funds, RBLs, and all the other buzzwords which baffled people like me. Well, I have to admit that these days, retirement looks increasingly appealing with each passing year. I'm still many years away from it, but when the magic day arrives, it sure will be nice to be back in control of one's own time. Naturally, that means more on-air time, getting the station properly set up at last, making some *real* noises in contests (with more preparation than just the usual Saturday morning rush), and so on. I'm sure many readers share similar thoughts.

As far as contests go, the past year is best summed up as being one of review, change, and experimentation. Although we all like things to stay the same, the irony is that this leads to stagnation and the ultimate decline of whatever it is we hold precious. Like every other activity, contests exist in competition with other things, and we need to continually try and think of ways to improve them, if they are to retain their appeal. In this regard you have an excellent team of dedicated contest managers, who not only organise your contests and check the logs, but also put a lot of effort into reviewing and fine-tuning them wherever necessary. Your letters and comments are especially valuable, because improvements in contests often result from the suggestions of entrants themselves.

I would like to thank all the contributors to this column over the past year, and especially the WIA contest managers including John Martin VK3KWA, Alek Petkovic VK6APK, Phil Raynor VK1PJ, and Ray Milliken VK2SRM. Not forgetting the independent contest managers as well! Have a very merry Christmas everyone, and see you all next year.

Thanks to this month's contributors VK3KWA, VK5OV, VK6APK, HA5JJ, VE2ZP, also *QST* and *CQ*.

73s,
Peter VK3APN

Addition to Results of 1995 RD Contest

Please add the following to the results published last month (* = certificate):

VK3:	**VHF Open**
VK3ACR*	955
VK3QI	274
VK3:	**VHF CW**
VK3DTR	2
VK3EAT	6

Congratulations to VK3ACR, who achieved the highest score outright in the contest. Well done Ray! The above scores were included in the Divisional totals published last month, so the statistics remain unchanged.

ARRL RTTY Roundup

6/7 Jan, 1800z Saturday to 2400z Sunday

This contest takes place on the first full weekend of January each year. The object is to contact as many local and overseas stations as possible on Baudot RTTY, ASCII, AMTOR, and packet (attended). More than one digital mode may be used, but QSOs and multipliers are counted once only regardless of mode. The bands allowed are 3.5-30 MHz, on frequencies recommended for digital operation (no 10, 18 or 24 MHz). Categories are: single operator multiband (1) max 150 W O/P, (2) more than 150 W O/P; multi-operator single transmitter multiband. A maximum of 24 hours operating time is permitted. At least two separate rest periods must be taken, with the on and off times clearly marked in the log. Listening time counts as operating time. "Ten minute" rule applies to multi-ops.

Exchange signal report and QSO number. W/VE stations will send signal report and state/province. Score one point per QSO. A station may be worked once per band for points credit. The multiplier is the total US states, Canadian provinces, and DXCC countries worked. The US and Canada do not count as countries. Multipliers are counted once overall, not once per band. The final score is the total points times the multiplier. Check sheets are required for logs with 200+ QSOs. Mail your log and summary sheet within 30 days (6 February) to "ARRL RTTY Roundup", 225 Main Street, Newington, CT, USA 06111. Alternatively, logs can be sent on DOS disk, or to the ARRL BBS (203-665-0090), or via Internet to contest@arrl.org.

HA DX CW Contest

21 Jan, 0000z to 2400z Sunday

This popular CW contest takes place on the Sunday of the third full weekend of January each year. Categories are single operator single or multiband, multioperator single or multi-transmitter, and SWL. Bands are 160-10 m. Exchange RST + serial number; HA/HG stations will add a two letter county code, unless they are HADXC members in which case they will give their club membership number. Codes for each call area are (1) GY VA ZA, (2) KO VE, (3) BA SO TO, (4) FE, (5) BP, (6) HE NO, (7) PE SZ, (8) BE BN CS, (9) BO, (0) HA SA.

Score six points per HA/HG QSO, and three points for each non-HA QSO outside your own continent. Multipliers are the total HA counties plus the number of HADXC members worked per band. Final score equals total points x multiplier. Separate logs for each band are requested. Send logs with summary sheet and declaration within six weeks to "Hungarian Radioamateur Society, Box 86, Budapest H-1581, Hungary".

CQ Worldwide 160 Metre DX Contest

CW: 26-28 Jan, 2200z Friday to 1600z Sunday;
Phone: 23-25 Feb, 2200z Friday to 1600z Sunday.

The CW and Phone sections of this contest are scheduled for the last full weekend of Jan and Feb each year. The object is to contact as many stations worldwide on 160 m as possible. *VK to VK contacts are permitted for contest credit.* Categories are single and multioperator. The use of packet, a spotting net, or logging assistant makes you multi-op. Suggested DX frequencies are 1830-1835; W/VEs will usually operate outside this window. Look for Japan on 1907-1912.

Exchange RS(T) plus prefix or country abbreviation (VK). W/VE will send RST plus state/province. Score two points for contacts with stations in own country, five points with stations in other countries in the same continent (continental boundary as for WAC), five points for contacts with /MM stations, and 10 points with stations in other WAC continents.

Multipliers are US states (max 48); Canadian provinces (max 13); and DXCC and WAE countries. Maritime mobile stations no longer count as multipliers. The final score equals the total QSO points times total multiplier (US states + VE provinces + DX countries). Indicate CW or SSB on the envelope, and mail the log and paper summary sheet to "160 Metre Contest Director, David Thompson K4JRB, 4166 Mill Stone Court, Norcross, GA 30092, USA". Mailing deadlines are 28 Feb for CW, and 31 March for SSB.

UBA SSB/CW HF Contest

SSB: 1300z Sat to 1300z Sun, 27-28 Jan
CW: 1300z Sat to 1300z Sun, 24-25 Feb

This contest runs on the last full weekend of Jan and Feb each year (SSB and CW respectively). Any station may work any other worldwide. Categories are: single operator (single and all band); multioperator single transmitter; QRP max 10 W O/P; SWL. Frequencies: CW 3500-3560, 7000-7035, 14000-14060, 21000-21060, and 28000-28060 MHz; SSB 3600-3650, 3700-3800, 7040-7100, 14125-14300, 21175-21350, and 28400-28700 MHz.

Exchange RS(T) plus serial number. Belgian stations will add their province code. Score 10 points for contacts with Belgian stations, three points with other European stations, and one point with others. The multiplier is the total of Belgian provinces, Belgian prefixes, and European countries. Total score is QSO points times multiplier. Send log, summary sheet, declaration etc within 30 days to UBA HF Contest, Oude Gendarmeriestraat 62, B-2220 Heist Op Den Berg, Belgium. Logs on disk in K1EA or ASCII format also welcome.

Results of 1995 Australasian Sprints

Presented by David, VK5OV

Entries for the tenth series of the Australasian Sprints totalled 12 in the CW section and 25, including two SWLs, in the Phone section. Unfortunately, there were no CW logs from Novice class operators again this year, even though at least one (VK3) appeared to be taking part. My thanks to all the contestants who took the trouble to send in their logs. Conditions were quite good with some excellent scores reported, but I must remind contestants that the sprints are only for contacts with VK, ZL, and P2 stations (ie Australasian) and that they run for one hour each (1100-1159z).

Most of the comments received concerned congestion on the band. Having as many as four contests occurring simultaneously is perhaps overdoing it somewhat, but it does result in a large number of potential contacts (even if 80% of them do not submit logs), and it should improve operating skills. But, the important thing is that contestants enjoy themselves.

The Adelaide Hills Amateur Radio Society and the VK5/VK8 section of the WIA congratulate the overall winners, Les Baber VK2RJ in the CW section and John McRae VK5PO in the phone section (three times in a row for John), as well as the winners in the individual call areas.

The results are below, with the certificate winners indicated by asterisks:

CW:

VK2RJ**	32
VK2AWD	25
VK3APN*	20
VK4EMM*	24
VK5NU*	27
VK5AFO	19
VK5GN	12
VK5UE	8
VK6AFW*	8
VK7HX*	9
VK8AV*	7
ZL1GQ*	18

Phone:

VK1JE*	29
VK2RJ*	63
VK2FUH	27
VK3JWZ*	19
VK4MOJ*	55
VK4EJ	25
VK5PO**	69
VK5KCX	68
VK5AFO	39
VK5ZH	38
VK5XY	38
VK5YX	35
VK5MAP	33
VK5UE	32
VK5RV	26
VK5PEB	19
VK5OB	10
VK6AFW*	7
VK7HX*	25
ZL1AGO*	43
ZL1BVK	35
ZL1GQ	28
ZL3GL*	13
SWL Ian McGovern*	61
SWL ZL-2329*	28

1996 VHF-UHF Field Day

Presented by John VK3KWA

The Field Day will again be run during the Ross Hull Contest, this time on 13/14 January 1996. A minor change to the scoring method has been introduced, to make grid squares more valuable for multiband entrants, and to encourage more activity on the higher bands. Those operators who take advantage of this rule change should be able to increase their scores significantly.

As usual, Field Day contacts can be counted for the Ross Hull Contest, and vice versa. Separate exchanges for the two are NOT required, but remember that the Field Day exchange must include your Maidenhead locator. The other thing to remember is that you can make repeat contacts for the Field Day, but not for the Ross Hull Contest.

Scoring is based on either a 24 or six hour operating period, which allows entrants to choose the operating period which suits them best, and makes it easier for those who can only operate on the Sunday.

Entrants who wish to do so can activate different squares on the two days of the Field Day, thereby helping others to collect new squares for the WIA Grid Square Award.

Duration:

VK6 only: 0200 UTC Saturday to 0600 UTC Sunday. All other call areas: 0000 UTC Saturday to 0400 UTC Sunday (in Eastern Summer Time this is 11 am Saturday to 3 pm Sunday).

Sections:

A: Portable station, single operator, any 24 consecutive hours. B: Portable station, single operator, any six consecutive hours. C: Portable station, multiple operator, any 24 consecutive hours. D: Home station, any 24 consecutive hours. Single operator stations may enter both Section A and Section B.

General Rules:

All modes and bands above 30 MHz may be used. Contest exchanges should

not be made on recognised DX calling frequencies. Repeater, satellite and crossband contacts are not allowed. Operation may be from any location. You may work stations within your own locator square.

Contest Exchange:

RS(T), plus a 3-digit serial number, plus your Maidenhead locator.

Repeat Contacts:

Stations may be worked again on each band after three hours.

Scoring:

Score one point for each QSO with a home station, and two points for each QSO with a portable station. For each band, multiply the total points by the band multiplier, to obtain the score for that band. The band multipliers are as follows: 6 m (1), 2 m (4), 70 cm (7), 23 cm (10), 13 cm (13), higher bands (16). Add the band scores together, and then multiply the result by the total number of grid squares worked from all bands. This is the overall score. Note: the same grid square can be claimed on more than one band. See the sample scoring table below.

Logs:

For each contact: UTC time, band, station worked, serial numbers and locator numbers exchanged, points claimed. The front sheet should contain name, address, callsign, section entered, the period of operation to be scored (either 24 or six consecutive hours, starting on the hour), and a scoring table as shown below. If you enter both the 24 and six hour sections, a separate scoring table should be supplied for each. Include a signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Entries:

Post logs to "John Martin VK3KWA, VHF-UHF Field Day Contest Manager, PO Box 2175, Caulfield Junction, VIC 3161". Logs must be received by Monday, 12 February, 1996. Early logs would be appreciated.

Awards:

The overall winner will be the highest all-band scorer in Section A. Awards will also be made to the entrants with the highest band score on each band in Section A, and the highest scorers in Sections B, C and D.

Sample Scoring Table:

Band	Points		Multiplier		Total		Squares		
6 m	xxxx	x	1	=	xxxx		xxxx		
2 m	xxxx	x	4	=	xxxx		xxxx		
70 cm	xxxx	x	7	=	xxxx		xxxx		
etc					xxxx	x	xxxx	=	xxxxx (Overall Score)

**PO Box 2175, Caulfield Junction, VIC 3175*

Divisional Notes

Forward Bias — VK1 Notes

Peter Parker VK1PK

Special VK1 — Italy Moonbounce Contact Planned

A special EME contact between Canberra and Italy will be the culmination of a week of festivities being organised by the VK1 Division to commemorate the centenary of Marconi's first radio transmission. This unique contact, to take place on the 23 centimetre amateur band, will be established from the University of Canberra. In addition, contacts with other 1296 MHz EME stations will be sought.

The EME station, assembled by Chris VK1DO, will be active between midnight and 9 am (local) on Tuesday, 12 December. The callsign for which to listen is VI100GM. The Division thanks Professor Paul Edwards, who has given permission for the VK1 Division to use a ten metre dish at the University.

5 to 12 December has been declared "Marconi Week". During this period, the VI100GM (VI 100 [years] Guglielmo Marconi) special event station will be active on most HF and VHF bands. A commemorative contest is being planned for the week, and certificates will be available to amateurs working VI100GM. More details will be provided on the VK1WI broadcast and packet radio.

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AN ENJOYABLE TREK WEST

Enjoyed catching up with familiar faces at the recent Perth Hamfest '95. Great also to have the opportunity to show all the new products to so many new enthusiasts.

IC-706 ACCESSORIES IN DEMAND

All of the key accessories have arrived! Some have been so in demand that they have sold out on arrival.

2M MOBILE KEENLY PRICED

Considering a 2M Mobile? The IC-2000H should be available currently at an attractive price.. We have had reports that this unit copes better with pagers than previous units.

SEE YOU AT ICOM DAY

I'm looking forward to seeing many VK3s at the Icom Day at Daycom on Saturday December 9th.

"...73"

Call me at Icom on
free call 1800 338 915
ph: (03) 9529 7582
fax: (03) 9529 8485

ACN 006 092 575

Ginini Back on Air

After a five months absence, the VK1RGI Mt Ginini two metre repeater, stolen over Easter, is now back on the air. After a vigorous fundraising effort, a group was established to assemble a replacement repeater for Ginini and, in the longer term, construct other VK1 repeaters. A temporary replacement for VK1RGI was installed at Mt Ginini at 2 pm Sunday, 15 October. It was previously on test from a site in Belconnen.

The Convenor of the Group, Neil VK1KNP, reports that the temporary repeater consists of two FM828s. Power output is 20 watts, and time out is 2.5 minutes. Users should wait for the pip before commencing their over, to allow the timer to reset.

The replacement repeater was built during the Repeater Group's Technical Workshops, held every Thursday evening. Other group activities have included modifying cavities and building a second two metre repeater.

Black Mountain Repeater Now VK1RBM

Still on repeater news, readers are advised that the callsign for the Black Mountain 8525 70 cm repeater will have been changed from VK1RGI to VK1RBM by the time they read this. This will better reflect the repeater's geographical location.

Telescope Trip Enjoyed by All

(An account by Richard VK1RJ)

Seventeen members and guests queued up outside the Griffin Centre on Monday, 23 October for the trip to the Mills Cross Radio Telescope. A little after 7.20 pm we all climbed aboard for the trip. We arrived shortly after 8.15 pm and were ushered inside for a detailed outline of the station by Duncan. There was plenty of time for questions as Duncan took us through each of the station's offices. Then he outlined the detail of the electronics in the station's radio receiving equipment. After this we all trooped outside for a walk to the antenna and further detailed explanations by torchlight. Unfortunately, the wind had now begun to spring up and it was cold outside. We all trooped back into the bus for the return trip to town, arriving around 11 pm. This was later than expected but all those who attended felt that the evening was well worth it. The Division thanks Graeme who organised our bus; Peter the bus driver for his patience and expertise in navigating rural roads at night with a bus!; and Duncan whose explanations of the workings of the telescope, combined with stories about snakes "everywhere" served to capture our undivided attention!

To all those who couldn't be there, don't miss any opportunity for a re-run of the visit. A most interesting evening.

New Education Officer Appointed

The VK1 Division now has a new Education Officer for 1996. He is Jeff VK1JE, who takes over from Graeme VK1GN. Graeme will continue to run the Morse code classes. All amateurs, I am sure, will welcome your appointment Jeff, and thank Graeme for his sterling work during his time in the position.

VK2 Notes

Richard Murnane VK2SKY

With the Christmas season approaching, the level of activity is declining, so there's not much to report this month. Much of the news that comes to pass is stale by the time it would otherwise appear in this column. For timely news updates, tune in to the Sunday news broadcast.

The Divisional Council held the first of its regional meetings at Orange during October, as reported on the broadcast by Divisional President Michael Corbin VK2YC.

Weekly Broadcast

In recent weeks, callbacks on the Dural 2 m repeater have been disrupted by jamming. What these people get from such behaviour is anyone's guess, but if you can provide any information about the identity or location of the jammer(s), please contact the Divisional Office. (It was recently reported that a CB operator in VK7, who jammed other stations by making duck noises, was fined several thousand dollars and had his equipment confiscated...it's nice to know that the SMA can be persuaded to take action against antisocial operators, even when one doesn't pay a licence fee!)

Please note that the last VK2WI broadcast for the year will be on 17 December; there will be no news bulletin on Christmas Eve and New Year's Eve (we volunteers deserve a break too!). Broadcasts will recommence on 7 January 1996.

On behalf of the NSW Divisional Council and its small army of volunteers, may I wish you all the best for Christmas and the New Year. Have a safe and happy holiday.

Thought for the month: The mind is like a parachute — it only works properly when it's open.

VK3 Notes

Barry Wilton VK3XV

Christmas Holidays

The WIA Victoria office will close on 19 December 1995, and reopen on 8 February, 1996. Membership applications received by post during this period will be processed.

Sunday Broadcast

The last broadcast from VK3BWI for 1995 will be on 10 December. Commencing from the first broadcast in the new year on 21 January 1996, VK3BWI will go to air on the FIRST and THIRD Sunday of the month.

Morse Survey

Our member survey regarding the retention of Morse Code was completed, and the result, whilst conclusive, is clearly indicative that member attitudes are changing with the progress of technology.

Result statistics are as follows:

Members surveyed — 1498
Responses received — 531
For the retention of Morse at AOCP level — 357
Those opposed — 172
For retention of the code at Novice level — 331
Those against — 198

Of those members who responded, several answered only one of the two questions asked.

In accord with the wishes of the majority, Council policy will be to support the retention of Morse code at this point in time; however, a significant number of members believe that a knowledge of Morse should not be a mandatory requirement for an amateur licence.

As technology continues to advance, and the hobby of amateur radio changes, the weight of membership opinion may well reverse in the future, and policy will need to be reviewed.

Nominations for Council

Nominations for the 1995/96 Victorian Division Council close at noon on Thursday, 15 February 1996. Nominations will only be accepted on forms available from the Secretary. Nomination forms should be obtained prior to close of business on 19 December 1995, or after the office reopens in the new year.

Inwards QSL Bureau

Propagation is slowly improving on the HF bands and the number of QSL cards being received is increasing. Approximately 50% of all inwards cards sorted are never claimed. Many of these cards are for members who do not avail themselves of the free service. Cards for some prominent DXers are included and this does nothing towards international goodwill with other amateurs. WIA Victoria is also holding cards for some

Continued page 31

DICK SMITH ELECTRONICS

Top Performing Transceivers From Yaesu!

FT-11R Micro Deluxe 2m Handheld

Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams.The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other advanced features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. Comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

2 YEAR WARRANTY LIMITED STOCK $599

FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 5, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

2 YEAR WARRANTY $699

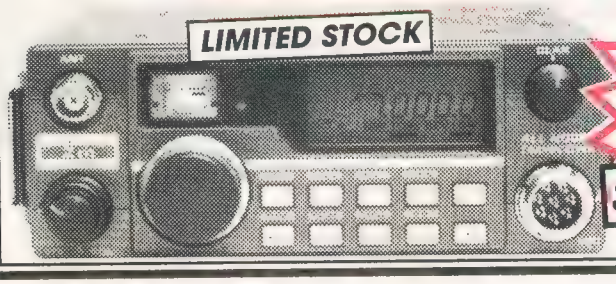
FT-290RII 2m All-Mode Transportable

Covers 144-148MHz and features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM (SSB- 25Hz/100Hz/2.5kHz and 100kHz; FM- 5/10/20kHz and 1MHz). Mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make this unit very simple to operate. It comes with a flexible rubber antenna, an FBA-8 battery holder, and a handheld microphone.

Cat D-2875

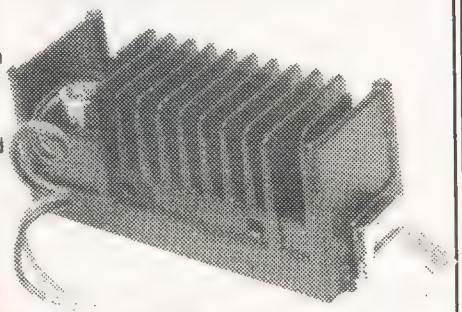
2 YEAR WARRANTY $999

LIMITED STOCK



Buy Both For Just $1195

SAVE $100



FL-2025 2m Amp

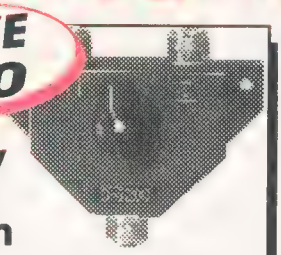
Turn your FT-290II into a powerful mobile/base transceiver - this bolt-on RF amplifier will replace the FBA-8 battery holder on the FT-290RII, and boost the transceiver's output to 25 watts. Requires 13.8V DC.

Cat D-2863

$299

A Great Range Of Accessories!

SAVE $10



2-Way Coax Switch

A heavy-duty, 2-way coax switch that's suitable for Amateur, CB or commercial applications. It's well constructed with a die-cast case and can handle up to 2kW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.
Cat D-5200

$29.95

2m Telescopic 5/8 Wave Hand-Held

SAVE $10

This 144MHz antenna stands just 22cm tall in its retracted 1/4 wave position, and can be extended to a full 132cm for excellent 5/8 wave operation. It's made from durable stainless steel, has a spring base to help protect it from rough handling, and a hand-held BNC connector for attaching to your transceiver.
Cat D-4333

$39.95

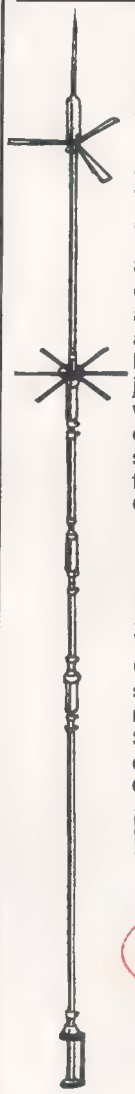
Hustler RX-2 2m 5/8 Wave Mobile

HUSTLER

A quality 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Supplied with 4.5m coax (PL259 attached). Made in the USA, it provides 3dB gain with a power rating of 100W maximum and uses a flexible stainless steel radiator to minimise wind loading.
Cat D-4805

$39.95

SAVE $10



Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.
Cat D-4920

HUSTLER **$349**

HF Antenna Systems

A range of helical HF mobile antennas designed for Australian conditions. Simply install a base and attach the whip according to the band you require. Each whip is approximately 1.6m long, appropriately loaded, and features adjustable tuning. Maximum power handling is 200 watts. (Recommended base: Cat D-4313. 5/16" heavy duty.)

80m	Cat D-4310
40m	Cat D-4311
20m	Cat D-4312
15m	Cat D-4314
10m	Cat D-4316

MOBILE ONE

For Only $49.95 ea.

5 YEAR WARRANTY

Revex W56ON HF/VHF/UHF SWR/PWR Meter

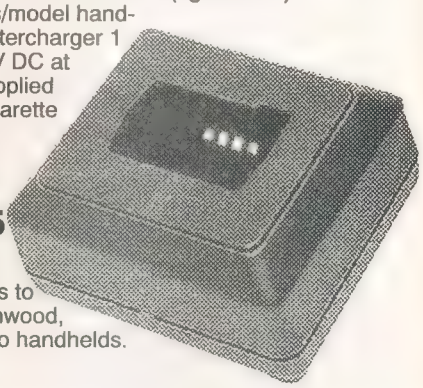
Quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), and SWR. Uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.
Cat D-1375

$329

SAVE $40

Mastercharger 1 Fast Desktop Charger

Made in the USA, the Mastercharger 1 is a compact fast charger that operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to safely charge NiCad batteries between 6V and 13.2V. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit other Yaesu transceivers (eg FT-11R) or different brands/model hand-helds. The Mastercharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.
Cat D-3850



$149.95

Now available - charging cradles to suit various Kenwood, Icom, and Alinco handhelds.

New Stocks Due Early December

2m 1/4 Wave Mobile Antenna

Stainless-steel whip for 2m, fitted with PL-259 plug. Suits SO-239 antenna base or SO-239 magnetic base.

Cat D-0100 **$4.95**

2m 1/2 Wave Base Station Antenna

MOBILE ONE

An Australian-made base station antenna that's 1.69m long and has a single section fibreglass reinforced polyester (FRP) radome for excellent all-weather operation. It covers the entire 144 - 148MHz range (<1.5:1 SWR). With a maximum power handling of 200W FM, it provides approximately 3dB gain. Fitted with an SO-239 socket.

Cat D-4820 SAVE $10 **$49.95**

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

Cat D-4825 **$69.95**

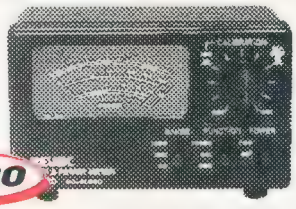
2m/70cm Mobile Antenna

The ST-7500 is a high-quality Japanese dual-band antenna that uses a ground-independent design and a tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB gain on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.

Cat D-4810 SAVE $10 **$79.95**

VHF/UHF Power/SWR Meter

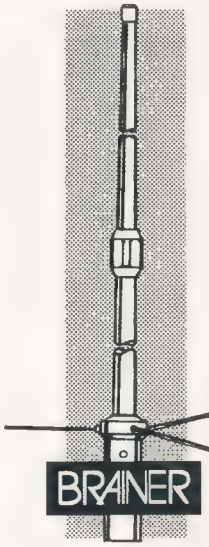
A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.



Cat D-1370 **$179** SAVE $20

High Performance 2m/70cm Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing randome and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.



2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

$199

Cat. D-4830

2m/70cm GST-3

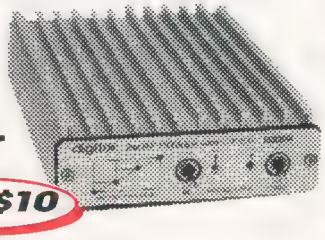
Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

$299 Cat. D-4835

2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an in-built GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).

digitor



Cat D-2510

$129.95 SAVE $10

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MAJOR AMATEUR STOCKISTS STORES SHOWN IN RED.

China Opens Up to Amateur Radio

Amateur radio continues to develop in China, with the recent relaxation of restrictions by authorities over recent years, culminating in the first Beijing International DX Convention, held over the weekend of 14-15 October, 1995.

Hosted by the Chinese Radio Sports Association (CRSA), the DX Convention was attended by delegates from many countries, including Australia, Canada, the USA, North and South Korea, Japan, Taiwan, Austria, Finland, Great Britain, Hong Kong, and Denmark. About 80 local Chinese amateurs attended. The DX Convention was opened by the China Communications Minister, who welcomed everyone and thanked those who had helped the CRSA in its development.

"I think this convention will greatly promote the development and communication of international amateur radio society," the minister said. "Amateur radio in China used to develop slowly, but nowadays, when we come to realise the importance of amateur radio, we will make every effort to promote it in China."

The minister's welcome was followed by a recounting of the history of amateur radio in China, from the beginning through World War II, and from October 1949 (formation of the Peoples' Republic of China).

Delegates from each nation gave a short description of amateur radio in their country so that local amateurs attending could have a first-hand view of what happens in other countries. After the Saturday evening banquet, a talk and slide show on the Huang Yan Dao BS7H Dxpeditions was given.

Two special event amateur stations were operational over the weekend of the Beijing DX Convention: BT1DX at the hotel where the Convention was held, and BT1X on the Great Wall at Badalang.

Significantly, the Chinese authorities issued each overseas visiting amateur with the first Visitor's Licences to operate 2 m in Beijing, using the call "B/<home call>". This was recognised as a monumental step for the administration of amateur radio in China, which is controlled by the Chinese Radio Sports Association. *(Thanks to Wally Watkins VK4DO for the above information).*

WIA Positions on EMC and Standards Combined

With the responsibility for industry compliance with electromagnetic compatibility (EMC) standards for electronics and communications equipment passed to Standards Australia by the Spectrum Management Agency (SMA), and the pending EMC compliance scheme commencing on 1 January 1996, the WIA Federal Council voted at its October meeting to combine the WIA Federal positions of EMC Co-ordinator and Standards Co-ordinator.

Hans Ruckert VK2AOU recently resigned his position as EMC Co-ordinator, which he had held for some years, and the position had remained unfilled since then.

At the quarterly WIA Federal convention held over the weekend of 28-29 October, the Federal Council appointed current Standards Co-ordinator, Roger Harrison VK2ZRH, to the combined co-ordinator position.

Standards Australia has responsibility for EMC compliance of equipment under a memorandum of understanding (MoU) signed between the SMA and the standards organisation (see *WIA News*, October 1994, page 39). From 1 January next year, equipment meeting the requirements must bear a "ce" logo. Australian companies expecting to export equipment to Europe will be required to comply and show the logo, also.

New Directions for WIA Federal Council

Among the decisions made at the WIA Federal Council meeting held over the weekend of 28-29 October, was the formation of three Council "Working Groups", each to be convened by an appointed Federal Councillor, to address important issues and activities for the WIA.

The three groups and their convenors are: the Strategic Working Group, headed by WA Federal Councillor Bruce Hedland-Thomas VK6OO; the Growth and Retention Working Group, headed by Richard Jenkins VK1RJ; and the Marketing and Advertising Working Group, headed by Bob Allan VK5BJA.

Broad terms of reference and activity plans are being developed to be discussed at the next WIA Federal Council meeting, early in 1996.

The WIA Federal Council also resolved, at the October meeting, to hold only three meetings next year, tentatively scheduled for February, May and October. It has been the policy and practice of the WIA Federal Council over the past five years to hold four meetings throughout each calendar year, one Federal Convention (the AGM) late in the first half of the year (April or May), and three Extraordinary Conventions at roughly quarterly intervals, which have been held usually in February, July and October. The move has been made in line with other efforts to contain the costs of running the Federal organisation.

Continued from page 26
members registered at the office who have not made a collection for some time.

News and Information

The provision of news and information about matters of interest to members is an important function of WIA Victoria. Chris VK3KCP, Dave VK3KAB, Paul VK3ALE and Dennis VK3BGS have volunteered their services as broadcast producers, and Gary VK3KKJ is doing a good job in the studio. News bulletins are also being posted on the packet BBSs.

In order to sustain a worthwhile service, we need to find more producers, and clubs and members will need to contribute news on a regular basis. If you can spare a little time in the new year to become part of the news team, then please contact the WIA Victoria Office.

Seasons Greetings

Council wishes all members a Merry Christmas and a Happy New Year.

VK6 Notes

John R Morgan VK6NT

October General Meeting

Twenty-four members attended this meeting, which was a reasonable number considering the wet and windy weather, and that all public transport was on strike for the day.

The meeting was an "open forum" on packet radio. Phil VK6AD led the discussion, which touched on the world-wide forwarding system, procedural disputes between sysops, inter-BBS co-ordination, the 1200 Bd "standard" speed for users, the possibility of a satgate for VK6, why beaconing is unnecessary and unhelpful, sysops' liabilities, censorship of bulletins, and the trend towards specialisation of BBSs. The truest remark of the evening came from Cliff VK6LZ, who said "packeteers don't care — until the system fails!"

There were insufficient members present (quorum not reached) for the business meeting to be held, although Neil VK6NE presented some detailed information concerning the multi-national DXpedition to Heard Island, scheduled for November.

The posts of Bookshop Officer and Program Organiser have become vacant. Bruce VK6ABR has run the bookshop for some years, but has had to put his work before his hobby, and Gwynne VK6AJG, who has arranged numerous interesting lectures, is unavailable for a while. Any member wishing to know more about what is involved in performing these valuable services, please contact the President, Cliff Bastin VK6LZ, on Perth (09) 458-6218.

The VK6 Division meets on the third Tuesday of each month at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend. Free coffee and biscuits are available at "half time".

News from WAADCA

Held on another wet and windy evening, the November GM of the Western Australian Amateur Digital Communications Association Inc (known as WAADCA, pronounced wad-kah) was a wonderfully informal affair! About 20 members attended, and spent a couple of hours in ever-changing small groups, deep in conversation about all things digital. A couple of portable packet stations were operating at the back of the room, and the coffee flowed freely.

WAADCA meets at 8 pm on the first Wednesday of each month, in the

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We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc. Log periodics provide continuous coverage from 13-30MHz (incl. WARC bands) and replace outdated tri-banders. Also 10/30 & 7/30 MHz. Now in use in 42 overseas countries and all continents.

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- Hard-drawn copper antenna wire and insulators.
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- Butt-section triangular aluminium towers for fixed or tilt-over applications also HAZER ASSEMBLIES.
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz; 10 models. All in stock. New 2m, 70m + 2/70cm for mobiles from $132.
- WARNING WARNING WARNING. Manufacturers world-wide are ceasing production of "VALVES", "VACUUM TUBES", ETC. JAN/ECG/PHILIPS in the USA have run last production of 6146W a rugged version especially for Collins S-Line ETC. Shortly, users of transceivers will have to discard them due to no replacement tubes. "WE HAVE GOOD STOCKS" 6146W $50.00: MP $115.00. ACT NOW & DON'T MISS OUT!!! !!!

BANKCARD MASTER & VISA CARDS ACCEPTABLE

For declining HF propagation conditions we are introducing our latest range of Log Periodic Antennas for the discerning Amateurs. We use all stainless steel hardware, 6351-TE aluminium for booms & elements. Phillystran hangers & anti-sway braces on all models.

1/- 10-30-10 (10-30 MHz CONTINUOUS COVERAGE WITH 10 ELEMENTS). 10.5MX BOOM. $1995 & FRT

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MONOBANDERS FROM 7MHZ IN HD & EHD. 1,2,3 & 4EL.

NEW MATCHALL FULLY AUTO COUPLER 1.5-30 MHz 150 WTS TO ANY RANDOM WIRE LENGTH. NO KNOBS OR EXT.
POWER INCL. AIR FREIGHT $299.00

NEW AEA SWR 121 HF & SWR 121 VHF/UHF ANTENNA ANALYST. SELF-CONTAINED SIG. GEN., SPECTRUM ANALYSER & GRAPHIC DISPLAY OF VSWR, OPTIONAL SOFTWARE FOR PRINTOUT. HF $750. V/U $850 incl. fragile freight.

4/- NEW: SOLE DISTRIBUTOR (AUST/NZ) FOR HI-SIERRA REMOTE CONTROLLED, CENTRE LOADED MOBILE WHIP ANTENNA — 3.5-30 MHz CONTINUOUSLY
SPECIAL INTRODUCTORY PRICE: $659.00 (incl. freight)
ALSO SOLE DISTRIBUTOR AUST/NZ FOR RAMSEY INC. TEST EQUIPMENT & KITS — SIMILAR TO HEATHKIT — MORE DETAILS AVAILABLE SOON.
ATN IS AN AEA DIRECT IMPORTER.

Meeting Room of the Wireless Hill Telecommunications Museum, Ardross. Visitors are always welcome.

News from WARG

There is sad news from the West Australian Repeater Group. Most of the solar panels at the Tic Hill repeater site have been vandalised. In an effort to conserve the power being produced by the few undamaged panels, the 2 m voice repeater (VK6RTH, 146.800 MHz) has been switched to low power, and the 70 cm voice repeater (VK6RTH, 438.225 MHz) and 2 m digipeater (VK6RTH, 144.825 MHz) have been turned off. The fate of the site has yet to be decided.

WARG invites you to take part in its Perth VHF net, held every Sunday morning, commencing at 10.30 am. Listen for VK6RRG on the Lesmurdie repeater (VK6RLM, 146.750 MHz). Meetings are held at the Scout Hall on the corner of Gibbs Street and Welshpool Road, East Cannington, on the first Monday of every month, starting at 7.30 pm. The odd-numbered months are General Meetings, and the even-numbered months are Technical Meetings.

Hamfest '95

This event, which is organised each year by the Northern Corridor Radio Group (known as the NCRG, club callsign VK6ANC), occurred on Sunday, 5 November 1995, at the Cyril Jackson Community and Recreation Centre, Perth.

The gathering was held in air-conditioned comfort, for which the 542 paying entrants (at a very reasonable $2 each) were most grateful. There were six sellers of pre-loved equipment, and eight commercial traders, including Antenna West, Dick Smith Electronics P/L, Terlin Aerials, and Tower Communications.

ICOM Australia P/L demonstrated its commitment to amateur radio with the presence of its managing director and two representatives of the parent company from Japan, together with Duncan Baxter VK3LZ, who was in great demand throughout the day.

The "homebrew" competition was won by Alan VK6ZAY for his designed-from-scratch 10 GHz narrow-band SSB transverter.

The first prize in the "monster" raffle (no, it wasn't a monster!) was a Kenwood TS-50 100 W HF mobile transceiver, which was won by Graham VK6RO. The second prize, a fax machine from CopyFax P/L, went to Neil VK6BHT, and Wayne VK6EH won the third prize, which was a UPS donated by Upsonic (WA) P/L.

The venue was considered the best ever, as were the catering and fellowship. The NCRG are to be congratulated for their efforts.

If You Have Material...

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

On 7 October, the VK7 Divisional Council met in Penguin with all Councillors present. An apology was received from Jim VK7FJ who was unable to attend.

Among items raised was the question of Public Liability Insurance for the Division and its ramifications. Several quotes were discussed and a decision was made to approach a Hobart broker. Authorisation was given to the President, VK7GL, to negotiate on behalf of the Division for a suitable policy, and our Honorary Solicitor to be consulted before it was accepted. The need for a Public Liability Policy is relevant in view of arrangements entered into by Branches with various government instrumentalities for site fees. In the negotiations, the possibility of whether additional repeater sites could be added to the policy was to be raised.

This led on to how the insurance could be funded and various options were canvassed. A decision was made that the Division would pay 50% and the remaining 50% would be split three ways with the three Branches. This subsequently was ratified by two of the three Branches at their October meeting, with one still to meet in November. Council also decided to increase subscriptions for the next year, in view of the costs likely to be incurred with Public Liability Insurance, site fees and other unforeseen increases in expenditure. The rates will be Full Member, $72.00; Concessional and Pensioner, $58.00; Non-Receipt of *Amateur Radio*, $44.00.

Barry Hill VK7BE was appointed Divisional Awards Manager for VK7 at the Divisional Council Meeting with John VK7RT as Deputy Awards Manager. This position also includes special events

WIA News

WIA Family Membership

As this time of year is when the great majority of WIA Division members receive membership renewal notices, it would be timely to remind members that Family Membership is now available, following a policy decision of the WIA Federal Council earlier this year.

In general, a Family Membership grade allows households having three or more amateurs in the family to obtain membership of their Division at a considerable discount.

There is a number of options available under which households could apply for Family Membership, but a general discount of 25% would apply. The principle behind it is that there would be a "cap" on the total amount of membership subscription from the one household, the total amount being decided by the individual Divisions.

As Divisions have differing membership subscription rates, the maximum payable will vary from Division to Division. There would be only one copy of *Amateur Radio* magazine sent to each Family Membership household.

For a three-amateur household applying for Family Membership, one option is for one Full grade membership, one X-grade membership and one Student membership. Or, it might be a combination of two G-grade (concessional) memberships and one Student, for example. In households with more than three amateurs (or, say, three amateurs and an interested SWL), only the international and national representation components of a membership subscription may be charged ($2.90 at present) for each additional member. Check with your Division for details.

stations within the State. An action plan for the next six months is being prepared for presentation at this month's Council meeting in Launceston. Incidentally, Barry's address is now 1 Marlou Court, Riverside, TAS 7250, which is different from that in the current Call Book.

The date and venue for the Divisional Annual General Meeting has also been decided. It will be 23 March 1996 at 1400 hours EDT at the Domain Activity Centre. More on the AGM in next month's column. There are only two meetings for this month. The Southern Branch will meet on Wednesday, 6 December at 2000 hrs EDT at the Domain Activity Centre. The Divisional Council will meet in Launceston on Saturday, 9 December at a venue to be announced over VK7WI. The Northwestern Branch will be holding a Christmas dinner at the Bass and Flinders Motel, Bass Highway, Ulverstone on Tuesday, 12 December at 1830 hrs EDT. Members of the Northern Branch may also be meeting for a Christmas function, which is being organised by Tony Cordwell VK7ZAS. Date and venue are undecided at deadline time.

On behalf of the Tasmanian Division, I would like to extend season's greetings to members of the Institute and look forward to your continued participation in 1996 in the activities of your Division.

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How's DX

*Stephen Pall VK2PS**

The year has gone very quickly for many of us. As one gets older, the quicker the time flies, and many of the well-intentioned projects, tasks and plans to be completed this year, as we promised ourselves in January, have fallen by the wayside.

From the DXing world a few memories still remain. The first signs of a possible new DXCC country with the Gaza Strip being active as ZC6B; the VP8SGP activity on South Georgia Island; the stressful and dangerous adventure on Conway Beef with stations 3D2CU and 3D2CT; the re-activation of Bhutan as A51/JH1AJT; frequently visiting amateurs at the Tunisian Club station using the official 3V8BB callsign; the second operation from Scarborough Beef as BS7H and the controversy surrounding it; the Easter Island and Salaz y Gomez DXpedition with callsigns XR0Y and XR0Z and new technological innovations; Barry's adventures on Kermadec Island as ZL8/G4MFW; Martti and his friends with the first legal contacts from North Korea using the callsign P5/OH2AM; Pratas re-activated as BV9P: Libya reappearing as 5A1A; Myanmar opening its doors with the XZ1X, XZ1A and XY1HT stations; and the highlight of the year, the Heard Island activity postponed into the new year.

During all this, propagation was steadily declining but with the hope that the new cycle will commence late next year. All in all it was not a bad year for DXing.

As there was friendship and goodwill all through the year, it comes as a shock, as reported to me by a VK5 amateur during the last few weeks in October, that when he contacted a French Polynesian station on Tahiti on CW for a signal report, back came a very short and stiff reply of "No VKs because of your protests." What a pity the ugly side of politics has raised its head in the amateur world!

I wish all my readers the compliments of the Season and a happy and healthy New Year with abundant propagation.

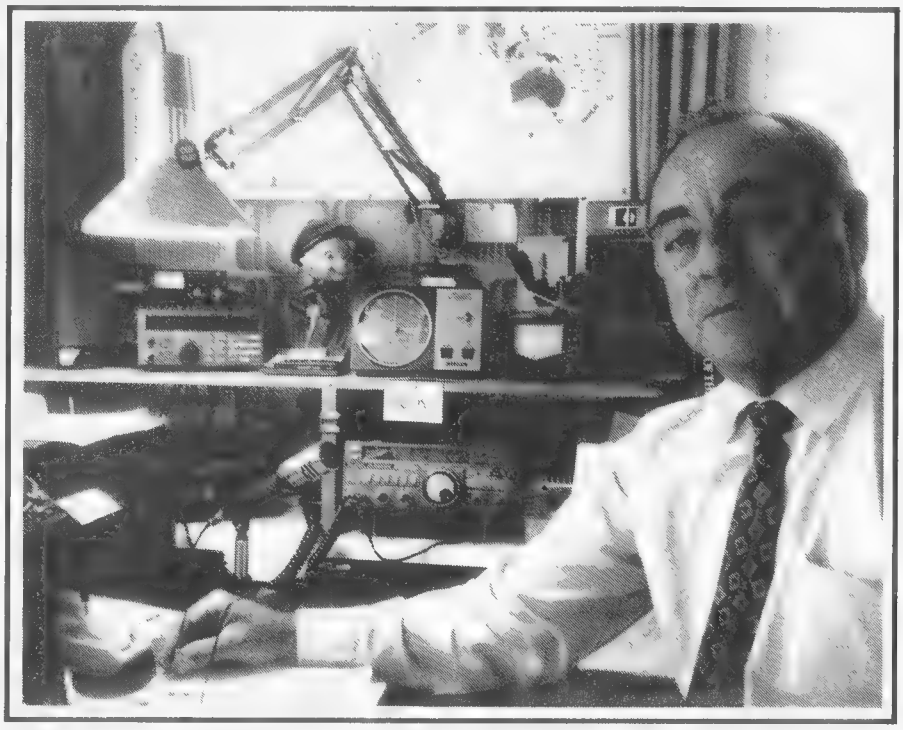
Heard Island VK0

It was 2200 hours local summer time in Sydney on 31 October when I had a phone discussion with Peter, ON6TT who is the coordinator of the DXpedition in Perth. The news was not good. The expedition was supposed to leave the West Australian shores tomorrow, 1 November. Unfortunately, this will not be so. Due to an unresolved dispute with the Master of the 85 foot motorship "Tallarook" the start of the DXpedition is delayed, probably until the early part of January 1996.

This is the second calamity involving sea transport which has befallen this group of dedicated DXers and adventurers. The first was the incident in December 1993 when the Russians cancelled the arrangements to pick the DXpedition up from Peter I Island, one month before the proposed departure. Expensive phone calls, faxes and hurried air-travel to Russia averted a transport disaster (see *AR* February 1994) Now, two years later, a similar thing has happened. Everything is ready for departure at the Fremantle wharf but there is no sign of the boat.

Earlier in the week the news was much more positive. Two hours after arrival of the expedition's advance party, in the persons of Peter ON6TT and Ari PA3DUU, I was on the phone to Perth and had a very long telephone discussion with Peter, who reluctantly agreed to this exclusive interview. The expedition usually never gives interviews to any magazine but communicates by press releases with them.

"The 1995 Heard Island DXpedition remains on schedule", said Peter. *"The 3Y0PI team members, Ralph K0IR, Bob*



The new generation of DXers — Gary ZL1KJ.

KK6EK, Ari PA3DUU, Harry RA3AUU who was with Romeo in Myanmar, Willy HB9AHL, Jun JH4RHF, Bob N6EK and myself ON6TT will be assembling here in Perth during the week before departure. The sea container holding most of the equipment has arrived." Peter continued, *"Five arctic tents which gave a very good service on Peter I Island will house our equipment. The main supporter of the group is Yaesu who supplied three of the latest version FT-1000MPs and three FT-900s. Cushcraft supplied a variety of triband and monoband antennas, a total of six. Alpha supplied five amplifiers. There is the Battle Creek Vertical antenna and two special antennas designed for us for 80 and 160 metres by ON4UN. In addition, each member of the expedition brought his own transceiver with him. Three 5 kV and one 7 kV gas generators completes the list of the major items of the equipment".*

The discussion turned now to the details of the activity. *"The innovations tested on the Easter Island Expedition (XR0Y) will be used by this expedition also",* said Peter. *"A beacon (VK6DIR/MM) will be activated as the ship weighs anchor. The callsign of the expedition will be announced when we have landed on Heard Island. We will maintain a bulletin information page on the Internet and on packet BBS and we will operate a callsign "look-up service" via the digital systems and packet via satellite. We will use the usual DX frequencies which we used on Peter I Island, except that on 80 metre SSB we will use the Australian "window" of 3799 kHz."*

"We plan to operate on a 24 hours basis. There are seven operating positions for eight people. We hope that we can have a total of 80,000 QSOs during our three weeks stay on Heard. We also have an amphibian vehicle which will assist greatly with the off-loading of the equipment on the island. Service communication will be assisted with a pilot system of six amateur stations strategically placed in Europe, USA and Japan. For backup we will have a commercial Inmarsat fax-voice-data satellite telephone system", said Peter concluding the interview.

What now? The cohesiveness of the group, according to Peter, shines in difficult times. They are disappointed about the postponement, but they are already planning the changed schedule of the expedition. Due to work commitments, Ralph K0IR and Willy HB9AHL are unable to take part in January, but there are already three or four new applicants to take their places. The equipment, until required, will be stored in Perth. A last word from Peter, ON6TT: *"I would like to say thank you on behalf of the expeditioners and myself for the friendship, kindness and help which we received from the VK6 amateurs. I have been in many parts of the world, but nowhere was I made so welcome as I was here in Perth".* We trust that the Heard Island DXedition will have better luck next time around.

Myanmar — XZ

Myanmar, more correctly the Socialist Republic of the Union of Myanmar, is a 676,552 square kilometre country in south-east Asia between India, The Peoples' Republic of China, Laos and Thailand. The country is better known in the western world as Burma with the capital city of Yangoon (formerly Rangoon). The population is approximately 46 million people. Myanmar, a former British Colony, became an independent state in 1948, which resulted in a complicated political turmoil lasting for many years.

The communists, rebel Karen and Shan tribes, and former veteran groups of the war were all unsatisfied with the democratic process, finally ending up with a military government which made Burma officially a socialist republic in 1974. Myanmar became a closed society until last year, when signs of change began, slowly, to emerge.

Myanmar and amateur radio came into focus after the "controversial" activity of Romeo XY0RR in September 1991. Whilst the ARRL DXCC desk accepted the activity as genuine, lately some doubt has been emerging in various amateur circles about that operation. Last year saw some amateur activity. UK and Japanese amateurs demonstrated amateur television to the officials of the Myanmar Government. JA1UT and G3NOM visited Myanmar on 31 July this year to demonstrate RTTY to the authorities and made about 154 QSOs on 20 and 15 metres.

A breakthrough came on the 28-29 September this year when a group of three amateur radio operators, Kan JA1BK, Olli OH0XX and Martti OH2BH were permitted to operate from Myanmar. Tim KJ4VH said in a press release, *"The group of above amateurs were very successful in demonstrating amateur radio to the Myanmar Government representatives. The establishment of amateur radio is now well on the way, and the first Myanmar citizens are expected to appear on amateur radio frequencies towards the end of 1996. The detailed proposal for establishing amateur radio service was well received by the representatives of the State Law and Order Restoration Council as well as by the Minister of Telecommunications."*

The visit of the operators was occupied with a lot of ceremonial activity, including meetings with two Myanmar ministers, but despite this the amateur group was able to make some 1000 QSOs from the Government buildings in the centre of Yangoon. The callsign used was XZ1X. They used a Yaesu FT-900 and Dentron GLA 1000 with an R5 antenna. At the end of the activity the FT-900 was presented on behalf of Yaesu Musen Co to the Government authorities as a training aid for future local amateur radio operators. XZ1X was active on 12, 15, 17 and 20 metres on SSB and 15 metres on CW. Most of the QSOs were with Japanese operators. QSLs go to Kan Mizoguchi, JA1BK.

Three weeks later, on 20 October, another small group of amateurs, Stig LA7JO and Ray G3NOM, as well as Joshi JA1UT who arrived a few days later with a Japanese group, started operating from the Ministry of Tourism in Yangoon under the callsign XY1HT, promoting "Visit Myanmar in 1996" and also promoting amateur radio. They were active on all bands and modes and had an excellent signal into Australia. QSL direct to the Manager, PO Box 1300, Bangkok, 10112, Thailand. XY1HT made a brief appearance in the CQ WW DX Contest and hoped to be on the air until 30 October 1995.

Not to be outdone, the XZ1X group returned to Myanmar on 23 October with a combined CW/SSB activity operated by JA1BK, K5FUV, N7NG, OH2BH and OH0XX with two trainee local operators. Wayne N7NG said in his press release, "Several operations which appeared this week on the band, are fully authorised."

These operations coincided with the United Nations Day on 24 October. The activities included discussions with the Myanmar Government representatives and an exchange of greetings with the ITU Secretary General based in Geneva. The activity included two stations signing XZ1X and XZ1A. QSL to Kan Mizoguchi JA1BK, 5-3, Sakuraga Oka, 4 Chome, Tama-City, Tokyo 206, Japan.

The Beijing DX Convention

The first Beijing DX Convention, organised and sponsored by the Chinese Radio Sports Association, was a success. It was held from 13 to 16 October at a hotel which was about 30 km from Beijing Airport and 10 km from the city centre. The cost of attending the convention was $US360 plus, of course, one's own travel cost. The registration of DXers from all around the world totalled more than 100, among them such well known callsigns as N7NG, K5FUV, OH0XX, OH2BH, JA1BK, S21A, VS6CT, KJ4VH, OH1TX, UA0MF, VE7BC, several groups from Chinese stations like BY1PK, BY1QH,

BY4AA, BY8AA and BY9GA, and their cousins across the water BV5AF and BV2VA, and many others. Registration was on Friday followed with a "get-to-know-you" dinner. The main business sessions were held in the mornings and afternoons of Saturday and Sunday. Lecturers included Bill Kennamer from the ARRL DXCC desk, N7NG, VE7BC, W4ETO, JA1DM, VS6CT, UA0MF and a group from P5 (North Korea). The banquet program also included the story of Scarborough Reef, presented by Chen BZ1HAM and Tim KJ4VH, and greetings from the various participating IARU societies. The Special Event Station BT1X was activated during the visit to the Great Wall and BT1DX was active during the conference.

Groote Eylandt — VK8

Stuart VK8NSB has announced that he will be visiting the island Groote Eylandt in the Gulf of Carpentaria (13° 58′ S and 136° 38′ E) from 22 December to 6 January. He intends to be active on the Novice frequencies of 3535, 21135 and 28125 kHz for CW, and 3618, 21260 and 28460 kHz for SSB contacts. He will be based in Alyangula and will be active from the QTH of Terry VK8KTC. Stuart is looking forward to working the big pile-ups in his favourite mode, CW. QSL to Stuart Birkin, PO Box 205, Karama, Darwin, NT 0812, Australia.

Future DX Activity

- From 1 November until 31 December, all Omani stations may use their callsigns with the added suffix /25 celebrating the 25th Jubilee of the Independence of the Sultanate.
- Carl WB4ZNH and his wife Martha WN4FVU are investigating the possibility of a Yemeni operation in the next 12 months.
- Mine JA2NQG will be active from Kathmandu, Nepal during 23 to 31 December as 9N1CT or as 9N1NQ.
- After Nepal, Mine will be active from Bangladesh as S21ZZ from 5 to 12 January.
- The newly independent Republic of Palau (formerly Western Carolines, KC6) has been allocated the prefix of T8. It is located in CQ Zone 27, ITU Zone 64.
- Leo K8PYD and Jon WB8YJF will be active from Chatham Islands, starting from the end of November, as ZL7PYD and ZL7CW.
- Gamito S92VG is the only CW operator until 1997 on the island state. He can be heard on 21 and 14 MHz during his local night (if there are no power cuts!). QSL (direct only) to PO Box 173, Sao Tome City, Sao Tome Island, Africa.
- YT1AD will be active from Sao Tome as S92AD from 4 to 14 December. QSL to Hranislav Hrane Milosevic, K BR 183 Vitanovac, 36206, Serbia, Yugoslavia.
- A group of French amateurs will be active from Principe Island (near Sao Tome) from 21 November to 6 December. The callsign is S92P and QSL is via F6KEQ.
- Gerard F2JD will be in Madagascar for about six weeks from November. His Madagascar call is not yet known. QSL to F6AJA.
- Siegfried Hari DK9FN, who was active from Norfolk Island in November, has a licence to operate from Easter Island as CE0Y/DK9FN.
- A group of UK and USA amateurs took part in the recent CQ CW WW Contest from Benin with the callsign TY5A. Some of them stayed behind so it is possible that you might work TY5SXW, TY5RF, TY5VT, TY5MF and TY5AR early in December.
- VA1S will be active during December to mark the 93rd anniversary of Marconi's successful radio transmissions from Canada to the United Kingdom. QSL direct to VE1AL.

Radio and

Communications

incorporating radio and CBAction

Halt! Who goes there? If you'd invested $100 million in a jet fighter, you'd want it to have the very best communications equipment available, wouldn't you? This month, RADIO and COMMUNICATIONS tells you where to listen to hear *all* the military aircraft action.

But that's not all by a very long shot. There's a lot of amateur radio stuff too, including these...

- Icom IC-2350 two metre FM mobile review. Yet another FM rig... but it's even better!
- Critically-coupled antennas. We conclude our look at a fascinating HF antenna match.
- Win an IC-706! And no, you don't have to subscribe! Just answer a simple question...
- A computer for the shack. Cut through the hype. What do you *really* need?

As we keep saying, a good, well-balanced radio mag is *much* more than just reviews! This month we take the bull by the horns, by asking the question which must sooner or later be faced: can we really justify having **Morse Code** as a mandatory qualification for an HF licence in 1996? We really want to hear from you on this one, and we have a very large box full of prizes for the best reader responses.

Don't miss out — it's great reading, and you could win one of our great prizes too!

Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well.)

- Mark ON4WW is active from Kigali as 9X/ON4WW until the end of the year. QSL via ON5NT.
- Mike K3UOC is back in Saudi Arabia as 7Z5OO on CW around 1200 to 1500 UTC. QSL, direct only, to W1AF.
- Ray 7P8SR will be active until the end of December. QSL to Box 333, Maseru 100, Lesotho, Africa.
- Nick G4OOE will be on the UK Sovereign Base Cyprus as ZC4EE for the next two years. QSL to Nick Langmead, PO Box 84, Dherynia, 5385, Cyprus.

Interesting QSO and QSL Information

- VU2JPS — Mani — 14200 — CW — 1124 — Sep (E). QSL via VU2AU, Sudhakar Dinkar Paranjpe, 24 Dharampeth Ext, Nagpur, 440010, India.
- OD5NJ — Gaby — 14210 — SSB — 0524 — Oct (E). QSL to the Manager, POB 70647, Awkar, Beirut, Lebanon or via the "OD" QSL Bureau.
- Z22JE — Dudley — 14228 — SSB — 1202 — Oct (E). QSL to Dudley N Kaye Eddie, 9 Patrick John Road, Chisipite, Harare, Zimbabwe.
- XU6WV — 14180 — SSB — 1033 — Oct (E). QSL to Mike VS6WV, PO Box 2011, GPO, Hong Kong.
- YT9N — Laci — 14260 — SSB — 1230 — Oct (E). QSL to YU7FIJ, Radio Club Senta, PPS Tornjos Marsala Tita 6, Box 1, YU-24252, Tornjos, Yugoslavia.
- YE8TI — 21260 — SSB — 0132 — Oct (E). QSL to YB8UMX, PO Box 612, Bitung 85577, Indonesia.
- T92A — Hamo — 7008 — CW — 1944 — Oct (E). QSL to S57MX, Milosav Kukolj, Brodarjev trg 7, 61110, Ljubljana, Slovenia.
- 4K6GF — Joe — 14023 — CW — 0600 — Oct (E). QSL to the Manager, Box 116, Ktoprak, Istanbul, 81031, Turkey.
- 4K1A — Vic — 14010 — CW — 0721 — Sep (E). QSL via UA1MU Victor G Toppler, Basseynaja, 72-2-105, 192241, St Petersburg, Russia.
- T32ZB — Lothar — 3799 — SSB — 1229 — Oct (E). QSL to DJ4ZB via the QSL Bureau.
- 9K2YY — Donna (yl) — 14191 — SSB — 1350 — Sep (E). QSL to KC4ELO Derek W McClure, 674 Crerstlyn Dr, North Augusta, SC 29841 USA.
- BV95TAG — 21015 — CW — Oct (E). QSL via the QSL Bureau.

From Here There and Everywhere

- Brian VK4LV reports that he received by registered mail the YI0BIF card of the station which he worked one year ago.
- VI50PEACE, the station operated by the Hervey Bay Amateur Radio Club, to commemorate the fiftieth anniversary of the end of World War II and remembering the men, women and children who lost their lives in that conflict, has made 10,672 QSOs with 136 countries including 1,350 CW contacts with 48 countries. All the direct QSLing and posting of the awards is up-to-date. The station was on the air from 1 August to 31 October 1995. Congratulations to the organising committee and members of the Hervey Bay Amateur Radio Club. Well done!

Dave ZL1AMN, net controller of the Monday YL DX Net.

- Sam VK2BVS was heard mid-October chatting away on 14275 kHz as 600A to JY5IN describing to those who were listening how wonderful life is in the north eastern part of Somalia. Mike, 600MA was also active a few days later.
- Betty VR6YL was heard on 3780 kHz talking to her New Zealand friends.
- Daylight saving started on 1 October in ZL and VK7 and on 29 October in VK1, VK2, VK3 and VK5. VK4, VK6 and VK8 stayed on their usual standard times.
- During my New Zealand trip I met Gary ZL1KJ and his XYL Mary. Gary is a relative newcomer to the DX world but his enthusiasm makes up for this. The other photograph shows Dave ZL1AMN, a regular net controller on the ANZA net and master of ceremonies on the Monday YL DX net. His XYL, Aola ZL1ALE, was in a very happy mood. Just the night before she had worked her last DXCC country and, for good measure, on 80 metres.
- A message was passed on to me by Bill VK4UA from Tom JT1BG. Tom says that direct correspondence sent to him should be marked "Mongolia via China". Tom says that, in the past, letters arrived via the old USSR, but usually empty. IRCs are not acceptable in Mongolia so send one "green stamp". Incidentally, Tom has two children, both radio amateurs with the callsigns JT1CC and JT1CT.
- T99MT and T91ENS are the callsigns of the Novo Sarajevo Radio Club which was active during the CQ WW DX contests. QSL to K2PF.
- According to the 425 DX News, Jim VK1FF reported that the VK1 Division of the Wireless Institute of Australia is planning the activation of a special station on 11 December 1995 to celebrate the Centennial of the first experiments by Guglielmo Marconi. During this activity the engineers and students of the University are planning an EME (Earth-Moon-Earth) QSO with an Italian station. A 10 m dish and high powered transceivers on 70 cm and 23 cm form part of the equipment to be used.
- Quite often, especially when listening on the net frequencies, one hears the word "figures" mentioned. In reply, these are given usually as a group of three numbers. The mysterious figures are referring to the state of propagation. The transmitters of the US National Bureau of Broadcasting Standards and Time Signals can be heard 24 hours a day, every day, on the frequencies of 2.5, 5, 10 and 15 MHz. There are two stations involved, both broadcasting in the AM mode. WWV, with a male voice, is transmitting from Ft Collins, Colorado, USA. WWVH, with a female voice, is transmitting from Kekaha, Kauai, Hawaii. The geophysical report is transmitted exactly 45 minutes past each hour. The first group of numbers is the 10 cm "solar flux", the second number refers to the "A" index, and the third group of numbers refers to the "K" index which is changed every three hours. The time signals are given in UTC time which gives you the opportunity to keep your clocks or watches exactly on UTC time.
- If you worked FP8NR from St Pierre and Miquelon Island, he was Ratko YU1NR. QSL to home call.
- Ron ZL1AMO was on Rotuma Island for two weeks from late October as 3D2RW/R.

- The callsign BT4ASF was used by the "1995 Shanghai Scientific Technological Festival" from 19 to 26 October. QSL to PO Box 085-205, Shanghai, CPR.
- The Ukrainian Amateur Radio Group, who successfully activated the 5A1A inaugural station from Libya, has had an uphill battle obtaining the promised written licence from the Libyan Authorities. It appears that administrative red tape is everywhere. DXCC is well aware of this. Their advice is to be patient.
- The ARRL DXCC desk has written to India to clear up the confusion with the Indian Communication Authorities about the necessary permissions which are "allegedly" required to operate from Andaman Islands.

QSLs Received

XX9X (11 m KU9C) — TT8NU (1 m F6FNU) — EU3FT (1 m W3HCW) — JW5NM (7 m LA5NM) — YS1ZV (2 m KB5IPQ) — 8R1K (11 m OH6DO).

Thank You

Many thanks to my faithful helpers for the information and news which keeps you up-to-date in the DXing world. Special thanks to VK2CJH, VK2KFU, VK2TJF, VK4AAR, VK4LV, VK4OH, VK4UA, VK6NE, VK6RO, VK8NSB, OH0XX, ON6TT, the ARRL DXCC Desk, *QRZ DX, The DX Bulletin, The DX News Sheet, The 425 DX News,* and *Golist QSL Managers List.*

*PO Box 93, Dural NSW 2158

Novice Notes

*Peter Parker VK1PK**

Introduction to Packet Radio

Put simply, packet radio is a means of exchanging computer data by radio. With the extension of Novice privileges and the proliferation of home computers, packet radio usage is increasing. This article tells you what packet radio can do for you and how you can start using this mode.

History

Packet transmission is not new; the basic technique dates back to 1964 (reference 2). American research led to the creation of the packet-based ARPANET in 1969, while radio transmission was first used by the Hawaiian ALOHANET the following year. Amateur packet experimentation began in Montreal, Canada in 1978. Later that year the first packet radio repeater (digipeater) was installed. Experimentation with packet radio continued in North America through the 1980s. In 1982 the AX.25 transmission standard (or protocol) was developed. AX.25 (which is still in use today) is a modification of the standard X.25 protocol. In the ensuing years, the system was refined and has since spread worldwide.

How Packet Works

It is not until you become involved with digital communications that you realise how complicated it is to establish and maintain communication over a radio link. What is implicit and taken for granted in voice modes must be made explicit to computers in a network. This is why computers have to formally "connect" to each other to exchange data. Likewise, to end a contact, the operator must consciously disconnect his/her terminal from the other station. These functions are performed by special software or a device called a TNC. More on this later.

When a user types a message at a packet terminal, it is broken up into small units of text, to be sent one at a time. Each unit of text (or frame) may be up to 256 bytes long. Frames also include additional information, such as the originator of the message, the callsign of the station to whom the packet is addressed, and control data.

AX.25's error protection feature ensures that packet transmissions are received as sent. When there is interference, a packet link will continually re-send packets until the receiving station has received acknowledgment from the sender that the message has been received correctly. If the interference persists, and the message cannot be passed, the packet system will give up after a set number of retries. All this is done automatically; no human intervention is required.

What Packet Can Do

Packet radio is a great system for leaving people messages. The mode is also handy for disseminating written material to large numbers of people; readers can save messages to disk to read later. If you need information on a piece of equipment, or want to find out where to obtain some esoteric component, a message posted on your local bulletin board system (BBS) will often bring results. Because bulletin boards are linked to each other via HF, VHF, UHF, or satellite links, you do not need HF to send messages interstate or overseas.

Information on a variety of amateur radio topics is available through BBS systems. Most WIA divisions post their weekly broadcasts on packet. You will also see amateur satellite keplerian elements, DX information, contest rules and technical "digests", to name a few of the messages passed each day through the packet network. Figure 1 shows a typical BBS's listing of messages. Packet users can also converse via the keyboard, though such contacts are slow and impersonal compared to voice operation.

Packet Equipment

There are two main ways of transmitting packet; one hardware-based and the other software-based. If you opt for the hardware method, you need a device called a Terminal Node Controller (TNC) which fits between your radio and computer. TNCs contain circuitry that assembles computer data into individual packets for transmission. During reception, the reverse process occurs, with received packets being converted to text that is displayed on the screen. TNCs also contain a modem, which converts computer data (after it has been assembled into packets) into audio tones which are then transmitted. Once again, this is done in reverse for reception. Some TNCs suitable for VHF/UHF packet operation cost around $250.

With the software approach, you can operate packet without a TNC by using a simple modem and special software that emulate a TNC's functions. If you already own a suitable computer, this method is the cheapest way of transmitting packet. With guidance from a more experienced amateur, it is not difficult to convert a 1200 baud telephone modem for packet operation. My own ex-telephone modem required a couple of circuit board tracks to be cut, a few extra connections and a simple transistor switch circuit to operate the radio's PTT. Assuming you have an IBM-compatible computer, all that remains is to obtain a copy of Baycom shareware, and connect the modem to the computer's serial port and the radio.

Most packet activity occurs on two metres, though there is some on UHF. Any synthesised hand-held or mobile FM transceiver should work on packet, provided there is access to the microphone, speaker and PTT connections. Alternatively, you may convert an ex-commercial crystal-locked transceiver for packet. A Philips FM 828 is a good choice. The main disadvantage of this approach is the high cost of crystals.

A vertically-polarised antenna similar to that used on FM will normally suffice. It should be mounted as high as possible. Two metre packet frequencies vary; some areas use frequencies around 145 MHz, while others operate near 147.6 MHz. Figure 2 shows a typical VHF/UHF packet station.

Operating Packet

Packet can be confusing to the newcomer, but several weeks operating should allow you to become quite proficient. Before you can get on the air, your callsign and other settings must be programmed into your TNC or emulation software. Either the instruction manual for your TNC or another packet user can assist.

Once you have found out the frequencies used in your area, it might be a good idea to try receiving local packet activity. As you hear the raucous packet tones through the speaker (and displayed on your modem's LEDs), you should be rewarded by lines of text appearing on the screen. A lot of these will be just callsigns, but you should be able to see people having packet conversations with others, or reading messages from bulletin boards.

Once packet reception has been mastered, try listening for the DOVE amateur satellite. If you leave your packet system on overnight, tuned to 145.825 MHz, in the morning you should see a brief message, followed by lines of telemetry code from the satellite. Because of its low orbit, DOVE's signals are very strong.

Initially, try to arrange keyboard conversations with nearby amateurs to prove that your packet station is working. Later, you could try connecting to BBSs and other packet users, some of which leave their equipment operating 24 hours a day. Keep a list of stations to which you are able to connect; using these stations as digipeaters is handy if unable to access stations directly. As packet requires almost a noise-free signal, your station's range on packet will be somewhat less than what you'd expect from FM voice operation. This is especially so where many are simultaneously transmitting on the one frequency.

A Session on the BBS

After you have experimented with receiving packet, and perhaps had a few keyboard contacts, it's now time to log on to a BBS. You must decide on a home BBS, to which messages sent to you by other amateurs will be sent. It is probably wise to make the closest BBS your home BBS. As the BBS will not recognise your callsign the first time you connect, it will ask you to register. This is a simple process, and normally entails answering a few questions. If you can reliably use the BBS without need for digipeaters, so much the better, as operation will be faster.

While connected to a BBS, you may send or receive mail, as well as read general bulletins. As a new user, there will be no mail addressed to you (unless prior arrangements have been made), so you should start by reading bulletins. Refer to the list of commands below. For instance, if you would like to list the last 20 bulletins, type in "LL 20". Within a couple of minutes, you should see a list of these messages rolling down the screen (see Fig 1). Each message is numbered. To read the contest calendar, for example, you would type "r 30953".

Every packet user has a packet address to which mail for them is sent. An address consists of your callsign, the callsign of your home BBS followed by various geographic identifiers. For instance, as VK1KCM is my home BBS, my address is VK1PK@VK1KCM.ACT.AUS.OC.

After some experimentation, you should be able to list bulletins sent to a single subject designator (eg WIA, DX, QRP, etc); issue bulletin messages within your own state, nationally, or worldwide; read messages and save them to disk; send mail to other packet users; and post text stored on disk on to the packet network. This list is not exhaustive, but should give you an idea of packet radio's capabilities. Patience is a great virtue when operating packet; when many are sharing the one frequency, there is a risk of packet "collisions". These slow the rate of data transfer. The problem is particularly acute in a hilly city (such as Canberra) where many packet stations are shielded from each other. The necessity for people to use digipeaters in such a situation only adds to the delays.

Conclusion

This article has provided a basic overview of VHF/UHF amateur packet operation. While the information contained herein is insufficient on its own for a complete newcomer to assemble a packet station, with guidance from a more experienced amateur and/or the references below, it should provide a sound starting point for experimentation.

Packet Commands

The following list gives some commonly used packet commands.

b bye — used after your have finished using a BBS
c connect (use when you want to get on to a BBS)
km kill messages addressed to me (do this after you have read messages to you)
l list messages unlisted since previous time on BBS
lm list messages to my station
l n list message number n
l< vk* list bulletin messages from VK amateurs only
rm read messages to me
r n read message number n
sb send bulletin message (to everyone)
sp send personal message (to a specific person)

Glossary

1200 baud — The data transmission rate of most VHF amateur packet. Higher speeds (such as 4800 and 9600 baud) are increasing in popularity.
AX25 — the technical standard (protocol) to which amateur packet conforms.
BBS — Bulletin Board System — a computer system connected to a TNC and

```
Msg    TSLD   Dim  To    @ BBS   From   Date/Time  Title

39054  B$L   17546 WIA   @VKNET  VK1PK  0822/2106 VK1WI  AMATEUR RADIO NEWS 23/8
30953  B$     4313 WIAQ  @VKNET  VK4BB  0822/2014 contest calendar
30952  B$     9398 NEWS  @AMSAT  K5ARH  0822/2012 * SpaceNews 21-Aug-95 *
30949  B$     7203 KEPS  @AMSAT  K5ARH  0822/1942 2Line Orbital Elements 230.AMS
30948  B$     2761 ALL   @AMSAT  SP2UKA 0822/1851 Cd listow !! Hi Hi....
30947  B$     2940 KEPS  @AMSAT  K5ARH  0822/1850 Orbital Elements  230.MISC
30946  B$     1126 AMSAT @AMSAT  YV5AMW 0822/1845 INFO REQUEST
30945  BFL    9429 LOGS  @ZAOIP  ZAOBBS 0822/1731 Logfile VK1ZAO 1995 week 33
30944  BFL     482 LOGS  @ZAOIP  ZAOBBS 0822/1731 Epurmess.Log
30934  B$     1499 MIR2  @VKNET  VK1DSN 0822/1453 Mir-2 Docking Module
30933  B$     3362 SPACE @VK1    VK1DSN 0822/1451 Refurbished Wind Tunnel
30932  B      7088 KEPLER@VKNET  VK1DSN 0822/1448 2-LINE ELS 22AUG WEATHER
  |     |      |    |       |                              |
Message | Message |    Distribution              Description of message
Number  | Size    |
     Message      Subject
     Type
```

Figure 1 — A typical listing of messages on a bulletin board system (BBS).

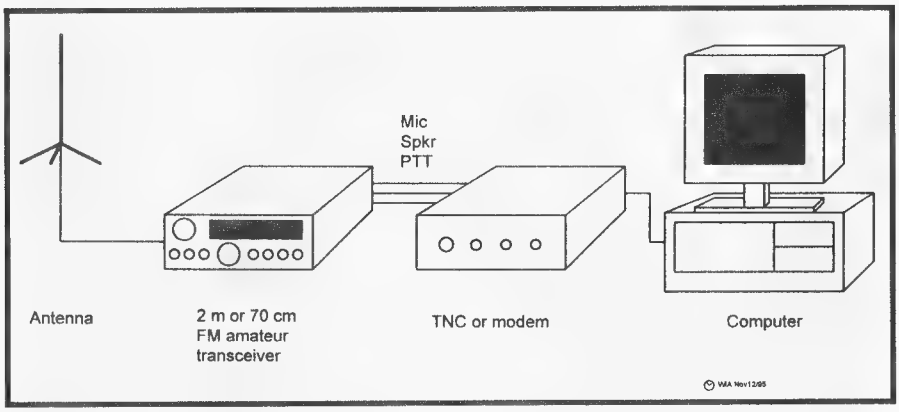


Figure 2 — A typical packet station.

transceiver where messages can be left for other users. Where BBSs are linked to other BBSs, messages can be sent worldwide.

Bit — The smallest unit of digital information (either 0 or 1).

Bulletin — A message addressed to everyone. You can see them listed on your local BBS. If you want to read a particular bulletin, type in the bulletin's message number, and it will be displayed on your screen.

Byte — A group of bits (normally eight).

Digipeater — A packet radio repeater. Unlike a conventional FM voice repeater, digipeaters receive, temporarily store and re-transmit incoming packets. Used if you are unable to connect to a BBS or other packet station direct. Any packet station left running will function as a digipeater.

Mailbox — Similar to a BBS except this is used privately by one person. You can send messages to people with mailboxes without going through a BBS.

Sysop — person who runs a bulletin board system (short for **SYS**tem **OP**erator).

TNC — Terminal Node Controller — the black box between your radio and the computer. Not required if you are using TNC emulation software (such as Baycom and Digicom).

TPK — A means of automatically receiving messages for you from a BBS without you needing to manually connect to it. Well beyond the scope of this article.

Wormhole — a link between two packet bulletin boards via a telephone line or through Internet.

References and Further Reading

1. Day, J — Packet Racket, *ARA/RAC* June — September 1995.
2. Horzepa, S — Your Gateway to Packet Radio, ARRL, 1989

**7/1 Garran Place, Garran ACT 2605*
VK1PK @ VK1KCM.ACT.AUS.OC

ar

Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make:	Kenwood
Model:	TH205A
Serial Number:	7113156
Type:	Hand-held
Stolen from:	Valla, NSW
Date:	11 October 1995
Owner:	Jim Jennison
Callsign:	VK2PU
Contact details:	065 695361

Make:	ICOM
Model:	ICW-21A
Serial Number:	1690
Type:	Hand-held
Accessories:	Black "Diamond" antenna
Stolen from:	Ringwood, VIC
Date:	25 October 1995
Owner:	Simon Tremlett
Callsign:	VK3TUG
Contact details:	03 9874 1233

ar

Remember to leave a three second break between overs when using a repeater.

WIA News

Beacon and Repeater Technical Licence Specifications

The Spectrum Management Agency (SMA) issued drafts to the WIA in October of the long-awaited Technical Licence Specifications (TLSs) for Amateur Beacons and Repeaters, asking for comments to be returned by the end of that month.

However, the period for comment was felt to be too short for adequate consideration by Divisional Technical Advisory Committees, so the WIA sought an extension of time. This was granted, with final comments from the WIA to be returned to the SMA by or before 24 November. The Divisional Technical Advisory Committees had until 17 November to return comments to WIA Federal Technical Advisory Committee Chairman, John Martin VK3KWA. This is the third round of draft TLSs for Amateur Beacons and Repeaters issued this year.

The existing regulations governing the establishment and use of beacons and repeaters are generally felt to be unnecessarily restrictive and in need of updating to reflect what can be achieved with modern technology, and to permit new applications and techniques to be developed by amateurs.

The WIA has already paid considerable attention to reform of the regulations applying to Beacons and Repeaters in representations to the SMA on earlier drafts of the TLSs, seeking the lifting of restrictions, for example, on the linking of repeaters. Action on these new drafts is the latest step in the reform process.

The new TLSs for Beacons and Repeaters are expected to come into effect by the New Year.

Education Notes

Brenda M Edmonds VK3KT Federal Education Coordinator*

In previous columns I have written about the possibilities of use of amateur radio in schools, and I have asked for information about schools which have radio clubs or are using amateur radio in association with parts of the curriculum.

The October issue of *Rad Comm*, the magazine of the RSGB, carried a report of the first World Conference on Amateur Radio in Education. This was held near London between 12 and 15 July this year. I quote from the article:

"...a new international organisation was founded — ICARE — the International Council for Amateur Radio in Education. In the foundation statement, the aims of ICARE were stated as "offering a forum to teachers and students world-wide for the exchange and support of educational projects and methods using Amateur Radio". The Conference was hosted by the UK organisation STELAR and sponsored by Trio-Kenwood UK Ltd and the Radio Society of Great Britain."

The conference attracted delegates from the USA, Canada and South Africa as well as a number of European countries. Some countries which did not attend sent papers.

The report gives a very brief summary of schools using amateur radio for teleconferencing, for balloon projects, physics work and to enliven language, geography or science classes as well as simply allowing students to communicate with other students.

The first international project is to be the development of SSTV systems in schools. Plans were made for its co-ordination by the *Amateur Radio in Education* magazine, electronic links and international meetings. As well as promoting the use of amateur radio in schools, ICARE intends to provide a range of services to participants.

I have written asking for a fuller report than was published and further information but do not expect a response for a while. When I have it I will pass it on.

From what I hear, very many Australian schools are enthusiastic users of the Internet and similar facilities, but there is little active school use of amateur radio. I have speculated on the reasons for this previously. Can we persuade some of those schools and students to use amateur radio instead of, or in conjunction with, other electronic paths? These are the young recruits we need to ensure the continuation of amateur radio in Australia into the next century. Our present recruitment rate is too low for us to be sure of our survival.

Once again, I would be very interested to compile a directory of schools which have an interest in or are actively using amateur radio. There is room for a lot of networking in this field.

**PO Box 445, Blackburn VIC 3130*

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J W (James)	YOUNG	VK2JY
M T	NICOLSON	VK5YN
K	MILLER	VK7SU

ar

WIA News

Survey on Morse Code Licence Qualification

Wireless Institute of Australia members are to be surveyed on the issue of Morse code remaining an amateur licence qualification in Australia, through a survey form included in this month's issue of *Amateur Radio*, except in copies circulated to members of the Victorian and Queensland Divisions who have already sought members' opinions and formulated Divisional policies on the issue.

The move follows a decision of the WIA Federal Council at its quarterly Convention held over the weekend of 28-29 October.

The survey is to gauge WIA Division members' feelings on the issue so that a policy position can be arrived at by each Division, and a Morse qualification policy subsequently formulated by the WIA Federal Council. Those WIA Division members in the other Divisions who do not receive *Amateur Radio* magazine as part of the membership subscription will have survey forms mailed to them by their Division.

In surveying only WIA members' feelings on the issue, the WIA Federal Council considered that, as the Divisions are membership organisations which exist to serve the interests of the members who contribute the bulk of WIA funds, it would not serve members' interests to spend money on a "survey of the whole amateur population", even if it had sufficient resources to do so.

WIA members form a sizeable proportion of the active amateur radio community and the Federal Council felt that results from the proposed survey would provide a statistically relevant sample of the views existing among Australian radio amateurs.

The issue of retaining Morse code as a qualification for amateur radio licences granting operating privileges below 30 MHz was on the agenda of the current World Radio Conference at Geneva (WRC-95), in session from 23 October to 17 November. The WIA's delegate to the Conference, David Wardlaw VK3ADW, was given guidelines by the WIA Federal Council to vote to maintain the status quo with regard to the International Telecommunications Union (ITU) regulations on Morse code qualification.

The International Amateur Radio Union (IARU) policy is to maintain the status quo.

The Spectrum Management Agency's policy, stated by Spectrum Manager Christine Goode in September, is to retain the current ITU regulations.

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Morse, or Another Skill?

I thought it about time to add my bit to the CW debate.

It annoys me to hear "CW is dead". It is a fact that, when other digital means are not available, CW is the most effective means of passing traffic, ie formal messages having details that need to be written down.

Even when conditions allow, passing such traffic by phone is slow and error prone due to voice and accent inflections, etc. Who can write down or type, in full and accurately, messages spoken at normal speech speed?

Nevertheless, being fairly realistic and a touch pessimistic, I acknowledge that sooner or later the anti-CW lobby will have their way and Morse proficiency will no longer be a full call licence requirement.

This means that only theory and regulations will be required. This is simply not a high enough skill level. In a world where greater and greater education standards are demanded (remember when the Intermediate Certificate "Year 10" would allow entry into further education institutions, the Police Force, Officer Cadet School, etc?), the skill level for an amateur operating licence is set to fall. I am deeply troubled by this situation.

I propose that an alternate subject be considered so that prospective licensees can choose between CW and it. I also propose that the traditional CW portion of each band be preserved.

If the opponents of CW are genuine in their belief and are not trying to obtain a full licence with less effort, they will not object to studying and passing an alternative subject.

This idea will also help those in our ranks who could be considered fully or partly Morse deaf, Morse to them being an insurmountable barrier which, perhaps unfairly, denies them the full call privileges.

Godfrey Williams VK5BGW
14 Jenolan Crescent
Hillbank Estate SA 5112

Morse Won't Disappear

I am disappointed to find a major blunder in the first paragraph of the *Pounding Brass* column in October 1995 *Amateur Radio.*

When CW, as a compulsory requirement for a licence, is dropped it will make NO difference to operators who choose to use CW as they will carry on using this mode. Those people who wish to learn CW, will, and will probably have QSOs with VK2SPS and his contact. The two operators in the article will probably not be aware of the changes. As it stands now, about 80 odd percent of operators either never have had, or never use, CW anyway, and would be unknown to CW-only operators. If CW is being "back seated", it is by operator indifference to CW, not the famous "they".

Please do not perpetuate the scare tactics of "they want CW banned", it only frightens those who cannot read English and stops educated debate. It is impossible to have meaningful debate unless both sides have the same question.

Steve Truscott VK2SPT
158 Regal Way
Valentine NSW 2280

ATV Feedback

I would like to bring to your attention a segment on the Nine Network's "A Current Affair" screened on Thursday, 12 July 1995. This was a very positive story on the VK4 ATV scene in the Brisbane area.

Although the producers allowed some condescension to creep in, on the whole the story presented the facts from a "human interest" slant. It also covered the issue of band occupancy and the possibility of losing the spectrum.

I have also written to the Network and congratulated them on the story.

Chris Newton (prospective amateur)
14 River Road
Tahmoor NSW 2573

Propagation Research

We are a UK club station based at Southampton Institute. We would like to get in touch with any VK/ZL stations that may be interested in assisting us with propagation studies on the 160/80 metre bands over the next six months or so. Even if they just put out a call at a particular time and frequency, that will be enough for us.

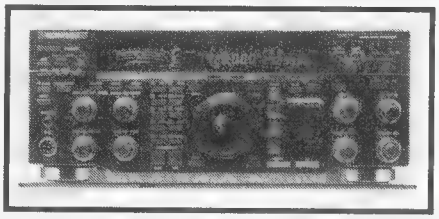
If they have Internet, Compuserve or packet radio access then this would be an advantage because we have these facilities that would make it easy and inexpensive to arrange scheds.

If you are able to assist, please let us know, and if you have an Internet or packet radio address, please let me know so that we can communicate by e-mail.

Neville Palmer G4GCI
GX3UVC Club Station
Systems Engineering Facility
Southampton Institute
East Park Terrace
Southampton SO14 0YN England
Tel: 44 1703 319280
Fax: 44 1703 334441 or 44 1703 222259
Packet: GX3UVC@GB7XJZ.#48.GBR.EU
Compuserve: 100116,370
Internet: Palmer_N@Southampton-Institute.AC.UK

What's New

Bob Tait VK3UI introduces new products of interest to radio amateurs.*



Kenwood TS-870S

Kenwood have announced the release of a new HF transceiver, the TS-870S, which boasts the very latest in digital technology. According to Kenwood this is the first of a new breed of transceiver in that it is equipped with not one, but two 24 bit digital signal processors at the IF stage. This offers such benefits as high efficiency digital filtering, noise and interference reduction, equalisers and DSP detection.

The TS-870S also has an in-built RS 232 adaptor to provide a high speed link to your PC. Simply plug in the serial cable, fire up the program and away you go. Also included is an in-built automatic ATU which can be selected on receive as well as transmit (unlike the TS-440). For the dedicated CW operator there is a fully featured "K1 Logikeyer CW Keyer". This is controlled directly from the paddle and should be of great interest to contest, DX and IOTA operators.

There are also some interesting features such as CW reverse, FSK reverse, Advanced Intercept Point, adjustable attenuator, and a fine tune control.

We do not have any information about the local availability of this new rig. We suggest you ring your local Kenwood dealer.

**C/o PO Box 2175, Caulfield Junction VIC 3161*

Pounding Brass

*Stephen P Smith VK2SPS**

1995 is slowly drawing to an end and 1996 is just around the corner. Where has the time gone! To finish off the year I thought we would look at the NSW Morse Practice Net, VK2BWI.

The WIA NSW DIVISION supplied the callsign VK2BWI portable which authorises the panel operators to broadcast Morse practice sessions to listeners (broadcast means to transmit without proof of any known receiving station).

The WIA authorises a panel coordinator, currently Ross VK2BRC. The job of the coordinator is to find competent Morse operators; instruct them in panel procedures and appoint them to particular nights; and oversee the service and ensure that the operators perform in the best interest of the users (members and non-members of the WIA).

The coordinator's job has become more difficult in these changing times, especially finding operators to man panel positions. Some methods used are advertising for volunteers over the VK2 WIA Sunday Broadcast; asking for volunteers over panel broadcasts; and asking amateur radio friends.

After discussions with various Morse groups, I have found what I believe to be the major reasons given for the lack of involvement: my Morse is not good enough; I do not have the time; and I'll think it over.

The purpose of the panel is to provide good quality Morse to those preparing for Amateur Telegraphy Examinations (Refer to the SMA RIB 70, Appendix F, page 67 and Appendix C, Telegraph Examinations pages 23 and 25). It should be understood the "panel" does not teach Morse although, on occasions, practice text does intrude into teaching Morse and technical subjects from time to time.

Speeds vary from about 4 wpm to 13 wpm, with faster speed after call backs on request. Depending upon which member of the panel is on that evening, a range of Morse devices is used to transmit the evening's practice session. One member uses the old pump key and has done so for some 15 years. Other operators use the paddle, or make up tape recordings and transmit these to air. So as you can see, there is no hard and fast rule. The good thing is you are going to get a variety of Morse and hopefully a pass in the next examination.

Being a panel member is demanding on time but, if one enjoys it, it's very rewarding. To put over a session, on the average, takes about two and a half hours. For example, to find suitable text and put it into form takes about sixty minutes; to put the session on air, about sixty minutes (8 pm — 9 pm); to read-back text and take call-backs, about thirty minutes; a total of two and a half hours.

A typical session is run something like this, but can vary depending upon panel operators.

8 pm, introduction on 3.550 MHz LSB — *This is VK2BWI the official station of the WIA NSW Division about to transmit the nightly Morse practice session on 3.550 MHz at 8 pm Sydney EST. Tonight's transmission comes from the station of Jim VK2NDI located at Pymble about 15 km north of Sydney. The first half of the evening speeds will be sent at 5, 6 and 8 wpm which will be read back, then going into 10, 11, 12 and 13 wpm which will be read back after hand-over to VK5AWI at 9 pm Sydney EST. Standby for CW. I will send a series of Vs for those who may have to retune for CW. Standby, go to CW.*

CT VVV VVV de VK2BWI

5 wpm — ct send text from AR.
6 wpm — ct send text from AR.
8 wpm — ct send two segments text from AR.
de VK2BWI/VK2NDI Pymble.
Go to SSB.
Read back text sent and make any comments
Invite listeners to go to 10 wpm, etc.

The above format is then applied to 10, 11, 12 and 13 wpm. At the conclusion of this the panel operator for the session wraps up the net as follows: *That concludes the Morse practice for this evening. After calling in VK5AWI, I will move down to 3.547 MHz, or thereabouts, for read-back and also any call-backs. To those who will not be staying, thank you for listening. Hello VK5AWI this is VK2BWI, operator Jim.*

Handover frequency

Stations move to the frequency specified, and the practice sessions for 10, 11, 12 and 13 wpm are read-back and any corrections made by the listeners.

Close VK2BWI

It's interesting to listen to VK2BWI as it has good coverage when conditions are good. I've heard call-backs from most Australian states and New Zealand. I would like to thank all members involved with the Net and encourage them to keep up the excellent work.

If any readers feel they can contribute something to the Net, please contact the coordinator.

To conclude this month, may I wish all our readers and their families a very Merry Christmas and a safe and happy New Year.

*PO Box 361, Mona Vale NSW 2103

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1996 Call Book

on sale NOW!

Don't Miss Out!

Special price to WIA Members from Divisional Bookshops

$13.00

plus postage and handling where applicable

Prevent pirates — make sure you sell your transmitter to a licensed amateur.

WIA News

First Home Station Licences for China Amateurs

Individuals can now obtain amateur licences for home station operation in China, where previously only club station operation was permitted.

Examinations have already been held and the first home station licences issued. There are four licence grades, distinguished by the callsign prefix. The top grade has the BA prefix, and licensees can use 500 watts on all bands permitted by the Chinese authorities. The next grade can use 100 watts on all bands and has the BD prefix, but no licences have been issued as yet. The third grade is allowed 10 watts, but operation is permitted on some bands only. The fourth grade requires no examination but can only operate on the one frequency and mode, 29.5 MHz FM, with home-made equipment. They use the BH prefix and the licence is for 12 months only, after which operators must upgrade.

Well-known Chinese amateur, Chen Ping, now sports the callsign BA1HAM. The BY prefix is still used by Chinese Radio Sports clubs, while the BZ prefix is used by individuals, but operation is only permitted from club stations. The Chinese have reserved the BT prefix for special event stations. *(Thanks to Wally Watkins VK4DO for the above information).*

QSP News

Author of "In Marconi's Footsteps" Wins Award

Peter Jensen VK2AQJ, whose book "In Marconi's Footsteps" was reviewed in the June 1995 issue of *Amateur Radio* magazine, has been awarded a 1995 Scientific American Young Readers' Book Award. Congratulations Peter!

■ Product Review

"Seek You" — Musical Items of Interest to Radio Amateurs

Available either as cassette or CD
Australian Agents, Terlin Aerials, 5 Yampi Way, Willeton WA 6155

Review by Bill Rice VK3ABP

I think this is the first time we have reviewed music in *Amateur Radio,* at least in the last 30 years or so! The performers in this light-hearted collection of amateur radio songs call themselves "The Ham Band", and quite appropriately are international in their origins. The two vocalists are Andrew Huddleston G3WZZ and Lissa Ladefoged. Jan OZ1ADL also is involved. The "Ham Band" includes two Danish guitarists and 15 performers from Nashville, Tennessee, where the music was recorded. Vocal recording was done at Aarhus, Denmark, and mixing in both places.

There are twelve songs in the collection, with titles like "Always on the Air", "I'm Not Climbing Up the Tower Any More", and "Seventy Threes". Only a specialist audience of radio amateurs could be expected to appreciate them; they would be lost on non-radio people!

But they make pleasant listening, different from the harsh discordance of much modern pop music material. Furthermore, the vocals are clearly enunciated and perfectly intelligible, again quite unlike the aggressive, incoherent shouting which seems prevalent these days! Or am I showing my age?

To sum up, interesting and tuneful songs about many aspects of amateur radio. Obtainable from the agents, Terlin Aerials, at $20 for tape cassette, or $30 for the compact disk (CD).

They'll never make the Top 40, but that might be in their favour!

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International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

*Gordon Loveday VK4KAL**

Reports are still sought on VRQ operations which are mainly found on 14.090 MHz and sometimes on 14.330 MHz.

VRQ is the callsign of the Vietnamese Foreign Affairs Headquarters, based in Hanoi. VRQ has many out-stations which are located at Vietnamese embassies. Traffic is mostly five letter groups with occasional long press releases in Vietnamese plain text. All traffic is duplex with schedules as often as every 30 minutes.

Radio Pakistan also features regularly in reports from our region. The transmitter used is very unstable, as reports show transmissions on a number of fairly close frequencies. To-date no reply has been received to letters asking Radio Pakistan about their presence in the amateur bands.

Maritime mobiles have been reported on 40 m. It is thought they may be part of the activities centred around the protest effort at Mururoa. The short SSB conversations heard by many listeners on 14.000 MHz are ship to ship, and may be tuna boats operating in the South Pacific. These last two items could be included in your Christmas listening.

The Monitoring Service is in need of more observers, particularly those who use the HF bands on a regular basis. Our frequencies are under increasing pressure from commercial interests and it is VITAL we detect, identify and complain about ALL INTRUSIONS into our EXCLUSIVE BANDS.

For any information or assistance, please do not hesitate to contact me.

*Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702, telephone 079 854168, or VK4KAL@VK4UN-1

Repeater Link

*Will McGhie VK6UU**

They're Out

Finally, after five years, the draft "new" repeater regulations came out in mid October 1995. I'm disappointed at the result. There are changes that are positive, but still too many regulations. My opinion is that, due to the extremely long delay, the original concepts have been lost. However, improvements have occurred, and these are draft regulations designed for comment and possible modification. This is the next step in this very lengthy process.

This is the second time I have written down my reaction to the new draft repeater regulations. The first attempt followed the history of the efforts put in to bring about sensible repeater regulations that reflect the amateur service. Shortly after it was finished, and only a day away from posting, I received a phone call from John Martin, the FTAC Chairman. The phone call was lengthy and productive. We discussed the draft of the new repeater regulations at length, as we had done many times in the lead up to their release. John is of the opinion that the history of the lengthy delays is best left alone. So, for the time being, pursuing the current draft and putting our energy into commenting on them, in the hope of further improvement, is the most productive course. Worthy of comment is the efforts put in by John Martin in relation to these repeater regulations. John has an excellent grasp of the situation and has spent many hours in negotiations with the SMA. At times this is an arduous task requiring much patience.

I must say that the complexity of this aspect of our hobby never ceases to amaze me. There is so much going on, most of which the average amateur only hears a tiny part of, and for all sorts of reasons is not, or cannot, be reported. I do not like this type of situation but that is the way the world runs and perhaps it is the only way it can. My point of view could just be too simplistic.

828 Sensitivity

After lining up many Philips FM828 receivers for the two metre band, I thought I had the procedure spot on. A signal generator adjusted for a weak signal and simply tuning the four front end RF capacitors, followed by the local crystal oscillator frequency multiplier. All this done while listening to the amount of quieting in the receiver's loud speaker. As the signal quietens, the signal generator is reduced in level to once again produce a noisy signal. Eventually a limit is reached with all the front end tuned circuits peaked for the best quieting. All that remains is to net the receiver onto the correct frequency. This can be done several ways but I will not go into this in detail as I intend to produce a detailed article on complete FM receiver alignment at a later time.

The receiver sensitivity of the FM828 is fair. The specifications say better than 0.4 μV for 20 dB quieting or, in the newer language, 12 dB Sinad. These two figures are close to representing about the same thing. A 20 dB quieting figure is about a 12 dB Sinad. Today's radios can achieve the same 20 dB quieting figure with as little as 0.12 μV. This equates to about 10 dB better sensitivity. So, with this thought in mind, I decided to change the front end RF transistor to one with a lower noise figure. The BFY90 as used in the FM828 has about a 5 dB noise figure. I replaced it with a BFR91 with a noise figure of about 2 dB. Now it is important to remember that a 3 dB improvement in front end noise figure does not result in a 3 dB improvement in sensitivity. The improvement is more like 8 dB. Don't quote me on that figure but the important point is the relationship between noise figure and the resultant receiver sensitivity is not linear. A small reduction in noise figure results in a considerable improvement in receiver sensitivity.

With two FM828s side by side I replaced the BFY90 with a BFR91. No other changes where made, such as optimising the feed points to the tuned circuits. I wanted to see if, with a minimum of modifications, the front end sensitivity could be easily improved. I then aligned the 828 with the BFR91, even doing it as the service manual suggests, by peaking the crystal oscillator injection level while measuring test point TP1. The result was about a 10 dB improvement between the BFR91 and the BFY90. Spectacular, to say the least. By the way, even though I have access to a good signal generator at work, I was using my home brew signal generator that is not as accurate. The point was the BFR91 produced a more sensitive receiver.

However, to make sure I was not being fooled, I decided to check the alignment of the BFY90 FM828, including the peaking of the local oscillator using the test point, and not just by ear. This done, I remeasured the sensitivity and it was the same as the modified 828 with the hotter BFR91!

After a lot of going over the results and alignment I came to the following conclusion. Tuning the local oscillator multiplier by ear can result in poor alignment. These tuned circuits are quite broad when tuning for best quieting by ear. However, when monitoring the tuning at the test point, a definite peak can be achieved. There appears to be an interaction between the last front end RF tuned circuit feeding the mixer and the oscillator multiplier circuits. After I peaked the multiplier circuits at TP1, I found the front end tuned circuits could be improved. The result was a more sensitive receiver. In my example, almost 10 dB.

You may find little improvement even if you only tuned the local oscillator multiplier circuits by ear, but it may be worth your while to do a retune. I would be interested to know what you find.

29 MHz

At the time of writing (mid October) there is still no licence for Australia's first licensed 29 MHz gateway. It has been, and continues to be, a slow arduous path but the licence cannot be too far away. I know the SMA have it and are processing it as, from the time it went to the SMA (some three months ago), I have had two phone calls to verify the location, which is correctly shown on the correct licence application form. If the three month period is anything to go on, the bill for the licence processing could be a big one.

Pager Noise

An interesting interference problem has occurred with our local repeaters on two metres in the Perth area. While listening to a conversation on all our local repeaters, gaps of several seconds were randomly missing from conversations. The repeater's mute would just close, as if the amateur transmission had cut out. My first thought was the flat cycling battery problem with a hand-held, but this was not the case. It was happening on all Perth repeaters and stronger input signals to the repeater were not dropping out but going noisy.

The reason was found, after a couple of weeks, to be a pager. This pager was producing large amounts of white noise right across two metres, when the pager went from being on to off. The pager would page and then, instead of switching off, it would go into several seconds of spurious white noise. The results as viewed on a spectrum analyser are quite spectacular, with the noise only being about 20 dB below the pager's carrier level. This noise was lifting the noise floor for several megahertz either side of the pager frequency. At this point in time the SMA have been contacted and the problem, hopefully, will be fixed soon.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBR

Spotlight on SWLing

*Robin L Harwood VK7RH**

Well, another year is rapidly coming to a speedy conclusion. Quite a lot has happened over the past twelve months. We have witnessed some of the major international broadcasters making further programming and transmitting reductions because of financial cutbacks.

For example, the VOA in Washington was forced to delete all of their English output to Europe on 23 September after 52 years of continuously broadcasting to that region. At the same time, the broadcasting of a few European languages were taken off shortwave although continuing over MW and FM relays, as part of co-operative broadcasting agreements. This decision has caused a predictable outcry from European listeners but the problem is out of the hands of the VOA management as the US Congress effectively has tied their hands. I also believe that further cutbacks are likely.

The "Voice of Russia", which was formerly known as "Radio Moscow", has really cut back their programming over the past twelve months, to the extent that many listeners are now saying "where is it?" There is some difficulty finding Moscow these days, on the bands! It certainly is a far cry from the days when Moscow seemed to be on every second frequency! Anyhow, I recently received a program schedule from the "Voice of Russia" for their World Service in English for Oceania with the following times and frequencies: 0600 to 0800 UTC on 21790, 17570, 15470 and 12025 kHz; 0800 to 0900 UTC on 17860, 12025 and 12005 kHz; and 0900 to 1100 UTC on 17860, 12025, 12005 and 9450 kHz.

The BBC in London made extensive changes to their English World Service programming at the beginning of April by broadcasting to specific target areas, such as North America, Europe, and the Middle East, etc. This initially caused a lot of confusion as several frequencies, which were heard well here, were carrying different programming to that specifically beamed to Australia. Now we have adjusted to that, these other frequencies have provided us with an alternative programming source to that being aired on the Australian stream. It is also pleasing to see they have re-introduced a 7 MHz outlet to the Pacific between six and eight hours UTC. It is on 7145 kHz, which is only 5 kHz down from where the "Beeb" used to traditionally broadcast to this region from Daventry.

Other changes were also noted over the past twelve months at Radio HCJB in Quito, Ecuador. They also reduced their frequencies to the South Pacific from three to one. They are now on 5900 kHz between 0700 and 1130 UTC. The SSB feeder frequencies were also reduced and now 21455 kHz is the sole channel in use.

The official VOA may have made some forced reductions in output due to financial and political considerations, but maverick commercial shortwave broadcaster WWCR has actually increased their output by adding a fourth transmitter to their facility at Nashville, Tennessee. As you are probably aware, the programming is diverse, to say the least, from WWCR. This broadcaster is now commencing to broadcast on the 90 metre tropical allocation of 3315 kHz, a move which has upset many tropical band DXers in the US and Europe. The majority of stations down there are only operating a few kilowatts at the most, while WWCR will be 100 kW plus!

Incidentally, I recently came across the Sri Lankan Broadcasting Corporation in Colombo broadcasting to Australia in English. Signals were quite good between 1030 and 1130 UTC on 11835 kHz. I preferred their programming style of the fifties, prior to the advent of TV. Certainly a change from the frenetic pace of today's programming.

Just a reminder that the annual yacht races are on again at the end of this month. The frequencies on which to monitor these races are 2182, 4125 and 4483 kHz, all on USB. Other channels worth checking are 2524 and 8715 kHz. I hope that you will be able to wade through the heavy QRN which dominates all low frequency channels at this time of the year.

Well, that is all for this month. In conclusion, may I extend my best wishes for a happy Christmas and a safe New Year in 1996.

Keep listening and 73.

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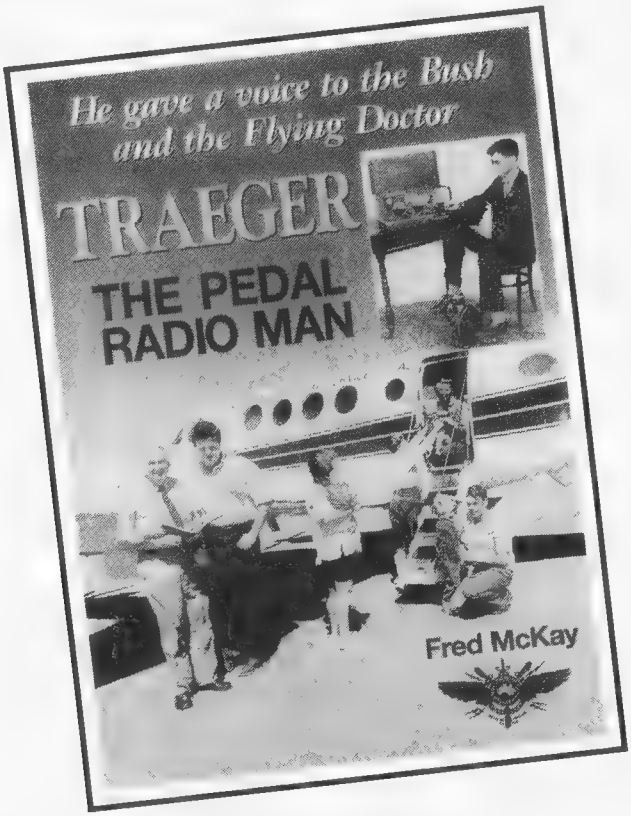
■ Book Review

Traeger — The Pedal Radio Man

Publisher: *Boolarong Press, PO Box 308, Moorooka QLD 4105*
ISBN 0 86439 192 7
Author: *Fred McKay*
Reviewed by: *Graham Thornton VK3IY*



The name "Traeger" was a household word in Outback Australia, but little known in the cities. At last, thanks to the Reverend Dr Fred McKay, the story of this remarkable Australian is now told.

Australia, with the development of its Royal Flying Doctor Service, clearly leads the world in this field of activity. A large slice of the credit for this achievement rests squarely with Alfred Hermann Traeger OBE VK5AX (1895 — 1980).

This reviewer, in the course of his employment, was privileged to make a detailed study of Traeger's equipment. It is very difficult to avoid that overworked word "genius". Traeger transceivers were characterised by three outstanding features: effectiveness, reliability and, above all, simplicity of operation. Competing equipment seemed like cable trams in comparison! Ever since, Alf has been both my inspiration and role model; so, if the reader detects an element of bias in this review, perhaps that can be understood!

The book is a biography, not a technical book. However, 11 appendices do provide some detailed technical information (the influence of Mervyn Eunson VK4SO can be recognised here — see his interesting article "The Unique Pedal Wireless" on page 7 of the September 1989 issue of *Amateur Radio* magazine). There are 108 pages in all, profusely illustrated with photos, maps and line drawings. It is written in a "fireside chat" style, and makes very easy reading.

Despite previous involvement with the Service, I learned much from its pages. The circumstances which led Traeger to the invention of the pedal radio, and the mechanical Morse keyboard, for which Traeger is most famous, are well covered. It is pleasing to note that his mastery of modern solid-state technology is also described (it is of interest to see a replica of the Traeger pedal generator on the latest twenty dollar note).

I have but one minor criticism of the book. In several places Traeger is tagged with the label "radio amateur". In a description of his life's work, this is quite inappropriate. No doubt Alf's extreme modesty has allowed this misdescription to be perpetuated. In reality, he was a highly skilled professional engineer — arguably one of Australia's finest. If allowed to award labels myself, I would have no hesitation in dubbing him as "The Michael Faraday of Australian Radio". Both individuals, in history, shared a common destiny: each was the right person at the right place at the right time!

It is entirely appropriate that this book should have been written by Fred McKay, himself the very worthy successor of "Flynn of the Inland". It is the life story of a man to whom Australia owes a great debt. It deserves a place of pride on any Australian bookshelf.

Copies, signed by the author, are available direct from the publisher for $14.95 plus $3.00 postage. Other copies may be obtained from Daycom Communications for the same cover price plus $2.00 P&P, or from your Divisional Bookshop.

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Help protect our frequencies — become an Intruder Watcher today.

Update

Repeater Link

On page 45 of the October 1995 issue of *Amateur Radio* magazine, sub paragraph 5. (iii), lines 11 and 12, the equation should read:

(148.1875 x 2) — **148.4125** = 147.9625

It might be a good idea to correct your copy of the October 1995 issue of *Amateur Radio* now.

VK6 80 — An 80 m Direct Conversion Receiver — September 1995

Some inconsistencies have been discovered between the circuits, layouts and the parts list. They are:

- The circuit and parts list refer to the Germanium diode as an OA95 whilst the layout shows an OA91. Either one can be used depending on the contents of your junk box.
- The BFO layout drawing shows the bypass capacitor as 0.01 pF. It obviously should be 0.01 μF. The 10-70 pF trimmer capacitor is unlabelled.
- The mixer layout drawing appears to be missing the 100 pF capacitor across the 10 μH inductor. Figure 5 shows this capacitor directly across the VC1 on the front panel.
- The variable capacitors VC1 and VC2 are shown as having differing values in the circuit and yet other values in the parts list. A value of 10 — 160 pF would be suitable although lower values will work with lesser tuning range. As the two capacitors are independent, they do not really have to have the same values and, as above, whatever the junk box contains will probably work as long as the values are approximately in the range indicated.

It might be a good idea to correct/notate your copy of the September 1995 issue of *Amateur Radio* now.

Cover Caption, November 1995

No matter how carefully we proof and re-proof the copy for each issue of *Amateur Radio,* from time to time an error sneaks through.

Regrettably, such an error occurred in the Cover caption on page 1 of last month's *Amateur Radio.* The early woman in Australian amateur radio featured on the front cover is, of course, Joy VK7YL. At least we had it right on page 18.

Please correct page 1 of your copy of the October 1995 issue of *Amateur Radio* now.

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VHF/UHF — An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

Messages Received

Peter VK1PK, advises that the VK1 Division proposes commemorating 100 years of radio by attempting to contact Italy from Canberra using 1296 MHz EME. Professor Paul Edwards, from the University of Canberra, has lent his support to the project and will make available the University's 10 metre dish antenna, which has 40 dB gain on 1296 MHz. The event is still being planned.

Steve VK3OT says VE3ONT has confirmed that: *Our recent attempt at contacting each other via the moon on 50.100 MHz was not a complete contact, so another attempt will be set up in the future to try to break the existing record between VK3 and W6. At this stage we confirm receiving each other's signals, after sorting out a similarity in the callsigns VE3ONT and VK3OT. They were aware that my callsign was different from theirs but spent, in their own words, a pre-occupied amount of time sorting out the callsigns.*

The fact that they decoded my callsign makes it a definite one way. On the reverse I had the advantage of knowing their callsign, so I needed to get from them a dedicated and discrete acknowledgement, as is the requirement to complete an EME QSO, which I was unable to do.

I think that VE3ONT and others have to realise that this is not easy to do. If it was that easy, daily contacts, such as on 144 and 432, would occur. VE3ONT was running an 8877 into 25 dBi. I was running a 5762B into 12.5 dBi. Our combined power plus antenna gain was off this planet and yet still the two-way escaped us.

VE3ONT was a near miss, over a terrestrial distance that exceeds by 300 km anything attempted before. The amount of atmosphere we had to beam through, both with only 15 degrees of moon view, was almost the extreme, coupled with the requirement for VE3ONT to terminate at 9 degrees elevation.

73, see you on the moon, sked any time, any place....Steve, VK3OT.

Peter VK4APG QG62LP reports the first JAs on six metres this season. Over one hour of propagation to JA on 14 Oct, 0457 to 0605. JA5CMO, JA3JTG, JA6GKW plus JA6/b and JA2IGY/b. 49.750 TV up to 5x5.

Ron VK4BRG sent the following via the VHF6 VKNET: *The band was open to VK3 25 October. At 0726 worked VK3LK, 0736 VK3DUT. VK4DO reported some activity prior to this time.*

When you do something which is different, it's surprising who responds. I received a packet message from Harry Burton ZL2APC, a former president of the NZART, welcoming me to the gang. I met Harry in the 1960s when he visited VK5 and attended our VHF Group meeting. Obviously our memories have not deteriorated too much if we remember each other from long ago.

Graham VK6RO sent a fax to say TV carriers were heard as follows: 20/10: 0923 48.240 and 48.250 at S5; 21/10: 0430 multiple signals on 49.750 to S9, 0440 46.240 Wagga S2, 0807 48.239.6 S2. At the time there had been a Polar Cap event report by WWV, also a solar storm.

John VK4KK phoned on 14/10 to say that at 0530 JA3-4 were 5x9. The sun count was 90. He also referred to contacts with New Caledonia from Queensland on 144 MHz and said this was an area which deserved more exploitation.

From the Japanese magazine *CQ ham radio,* courtesy **Graham VK6RO,** is an item from Nick UA0FL to JJ1APX, outlining his contacts from Sakhalin Island to Japan on 430 MHz. He uses a Kenwood TM441 and a six element yagi. He writes: *I have had 24 QSOs with JA8s on 430 MHz FM, with signals to 5x9 at times, but most of them are unlicensed truck drivers, not amateurs.*

It is disturbing to read that 430 MHz is used by truck drivers in Japan. I suppose the owners see the use of amateur equipment as a cheap alternative to having licensed commercial gear. If no one complains, it will continue and probably escalate.

Rod VK2TWR operates from Nimmitabel which is 35 km south of Cooma. He is at a height of about 1000 m with a clear take-off in all directions. The closest obstruction is Mount Kosciosko at 45 km. He is able regularly to work Mark VK2EMA at Tottenham in central NSW.

Rod advises that the VK1 beacons have been handed to the VK2 Division and will operate from Mount Eagle, 20 km south of Canberra, at a height of about 1400 m. Omni-directional antennas with a gain of 5 dB will be mounted at 15 m for 144, 22

m for 1296 and 30 m for 432 MHz. It seems that they will operate with VK2 callsigns, which in a way seems a pity as they lose their individuality, but if it means they will be on air, then that is to our advantage.

Alan VK5BW phoned to say he will operate portable from Mount Bryan during the VHF/UHF Field Day over the weekend of 13/14 January 1996. He will run 100 watts on 50, 144 and 432 MHz and 10 watts on 1296 MHz. He will attempt to work through to Sydney via meteor scatter and/or aircraft enhancement, also possibly to Melbourne via aircraft.

Alan said the Broken Hill Group were possible starters for the Field Day with portable operation on 50, 144 and 432 MHz. **Randell VK2EFA** will be involved.

50 MHz While in Europe

Quentin VK3DUQ passes on his encounters with 50 MHz during a three months tour of the UK and Europe commencing in May. With his son Simon, they were based in a London flat. Quentin took an FT690 (loaned by VK3YPY), and a dipole, which he found could not be operated outdoors. With the call G0/VK3DUQ, and using the antenna from the room, he found six metres "absolutely fascinating".

When the band is open the degree of activity is "phenomenal". Six metres is the lowest frequency available to the "no code" licensees, who operate with G7xxx calls. There is also much activity by Novices signing 2E1xx. The QRM is extreme at times and long queues form to work the rare DX, but all done in an orderly fashion. It may take several hours to catch a rare one, if the band stays open long enough. There is considerable activity throughout Europe, but not on the scale of that in the UK.

The band was open most days during May and June. Countries worked were: 9A, 9H, CT, DL, ES, EH, F, G, GM (the Orkneys), HV4, I, IA (Elba), IS, OE, OH, OK, OY, OZ, S5, SM, SP, YU, UT6 (Ukraine), the latter being his best DX. He missed some due to his weak signal and these included C31, EI, GI, LA, LZ, OM, SV, YO, VE1, W1, the latter two were very weak on 7 July and heard shortly before closing the station. Many beacons were heard with the most consistent ZB2VHF on 50.035 but no Gibraltar stations were heard.

The Gs use a packet DX-cluster on about 50.7 MHz to alert them to band conditions. Surprisingly, there is little local activity when DX is absent. Quentin made many interesting G contacts and visited several local stations.

The travellers entered Europe via the channel tunnel, which he found quite an experience, and spent time in Paris, Frankfurt and Berlin. He was last there in 1959, and the changes since have been enormous. The scars of World War II, from the advancing Russion troops of 1945, are still visible on buildings in East Berlin.

Quentin said he "discovered" six metres in early 1946, as a sixteen year old schoolboy attempting to find 28 MHz and the already active post-war amateurs, but ended up becoming hooked on six metres, hearing the first Es interstate QSOs (VK3 to VK2 and VK4), in December 1946. He became VK3IM in 1948, his first QSO was on six metres with VK3QU on 26/6/48.

He was active on six metres until 1955/56 when amateurs were moved to 56-60 MHz, left for the UK in 1957, and heard W1, 2, 3 and 4 working the UK and Europe crossband from 50 to 28 MHz. Returning to Australia, he found Channel 0 TVI a real problem and allowed his licence to lapse, returning with the present call in 1983. He is still active on six metres from his home at Kew and weekend shack at Dromana on the Mornington Peninsula, which is a good VHF site. Now retired, we can expect to hear more of Quentin in the future.

The UK and Europe

The news from **Ted Collins G4UPS,** shows a dramatic decline in six metre activity with the disappearance of consistent summer Es conditions, other reports indicating a resurgence of interest in the bands 144 MHz and above, particularly 3 cm.

For the first fortnight of August, Ted operated portable from grid square IO92 in Worcestershire, keeping his daily contacts with G3CCH and SM7AED, using 25 watts to a two element HB9CV yagi.

Others in the log came from 9A6, CT, CT0WW/b, DL, EA3VHF/b, EH, EH8, ES0SIX/b, ES6SIX/b, F1, G4, I, IS0, OH, OK, OY, OZ, S55ZRS/b, S56, SK3SIX/b, SP, SR5SIX/b, YL, YU and ZB2VHF/b. Seventeen countries and eight beacons — quite a good way to fill in holiday time!

At home from 15/8 resulted in the following: CT, CT0WW/b, EH, EH7, ES, ES0SIX/b, GM, HB9, IK, OH, OH1SIX/b, OH9SIX/b, OK, OZ, OZ6VHF/b, OZ7IGY/b, S55ZRS/b, SK3SIX/b, SM, SP, SR5SIX/b, YT, ZB2 and ZB2VHF/b. Fourteen countries and eleven beacons.

September brought the following: 9A3, CT, CT0WW/b, DF, EA6, EH, ES, ES0SIX/b, I, OE, OZ6VHF/b, S55ZRS/b, SK3SIX/b, SM, SP, SR5SIX/b, YU and ZB2VHF/b, being eleven countries and seven beacons. By including UK beacons heard, the beacon score rises to fourteen, so you could have quite a lot of fun tuning beacons.

Other information from Ted is a report from ES1CW that there is to be an extensive relaxation of six metre regulations in Estonia, which will allow classes of amateur other than Class A to access six metres.

Also: *The recent news flashes regarding the surprising solar activity has produced a prediction from Professor Hal Zirin of the Californian Institute of Technology, that the next solar cycle will peak between 1997 and 1999.* Interesting thought!

The United States

In keeping with the relative quietness of six metres in Europe, the same has occurred in the US. **Emil Pocock W3EP,** in *The World Above 50 MHz* for November, has little to report on six metres, but a series of high-pressure systems that brought sweltering weather to much of the country's mid-section during late July and August created ideal conditions for tropospheric ducting.

While the three-day opening of 28-31 July did not produce any new distance records, stations in Wyoming, Colorado and New Mexico, who rarely experience long-distance tropo, had an exciting time, with distances to just under 2000 km. Distances of more than 1000 km were recorded on 432 and 1296 MHz. Another good tropo opening occurred from 19-24 August with distances to more than 1300 km.

Emil included a photograph of **Jimmy Treybig W6JKV,** with his complete two-metre EME yagi and mast neatly packed in a small golf-club bag. The extra space holds elements for the 6-metre Yagi, which are mounted on the same boom. Elements for two complete Yagis, a long boom, and a mast can easily be taken on any airliner as carry-on luggage!

Jimmy HR6/W6JKV operated portable from HR6 from 8-19 June, and completed 383 contacts on 50 MHz to Canada, Mexico, and all US call districts. Honduras was a new country for most who worked him. Using his single long Yagi on 144 MHz he completed six EME QSOs on that band along with two others on scatter. So it looks as though the golf-bag luggage was worth carrying!

Emil also noted that France has not completely abandoned its VHF TV channels. The private CanalPlus subscription network operates about 70 VHF stations, nearly half of which run less than one kilowatt and all but five are on the French channel 5 (176 MHz video) or higher. French channels 6 through 10 are spaced 8 MHz apart through 216 MHz.

The Sporadic-E Season

Some people do not like the term "season", but the concentration of Es during the summer months really amounts to a season! By the time you

read this we will be well into the Es. If we can be treated the same way as the northern hemisphere during their past summer, then we will be in for a treat on 50 and 144 MHz.

In order to assess how our Es is treating us, I will need information. I urge readers to keep me informed of their activities, especially outstanding contacts which most operators enjoy at some time, particularly on two metres Es. Opportunities for long-haul contacts are provided by those operating portable and there are bound to be some camped on hill-tops between Christmas and New Year. Support their efforts by giving them contacts — they usually have at least four bands, but tell me about it!

You can contact me by fax or packet. Although the details are always provided at the end of these columns, people tend to forget to look at the fine print, so I will tell you here and ask you to write the details in your log book or some well known place. Fax number is 085 751 043 and packet is VK5LP@VK5WI.#ADL.#SA.AUS.OC or you can use Snail Mail (as the mail is now referred to in some quarters), to Box 169, Meningie SA 5264. At this moment I do not propose adding e-mail, but I thank Dave VK2KFU who sends me e-mail forwarded by Geoff GJ4ICD.

I would prefer to have information, at the latest, by the first of the month, but if a bit later send it because it may be possible to slot it in. But please, please, keep me informed of what you are working and hearing, we can't let the northern hemisphere have all the glory! Those of you on the east coast, let me know what you work in New Caledonia; there is 144 and 432 MHz out there and, of course, the ZLs are always ready with bands at least to 1296 MHz.

Closure

This month I commence the 27th year of writing these notes. Thank you one and all for your continuing support.

May you all have a blessed Christmas and a happy 1996.

Closing with two thoughts for the month:

1. Marriage is a deal in which a man gives away half his groceries in order to get the other half cooked; and
2. The sun, with all those planets revolving around it and dependent upon it, can still ripen a bunch of grapes as if it had nothing else in the universe to do.....Galileo.

73 from The Voice by the Lake.

**PO Box 169, Meningie SA 5264*
Fax: (085) 751 043
Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC

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WIA News

Region 3 Amateur Radio Direction Finding Games, 1996

Townsville in North Queensland is the venue for the Second International Amateur Radio Union Direction Finding Contest, to be held in July next year.

The WIA is the host amateur radio society for this international event, with teams from China, Taiwan, Japan, New Zealand and other countries in the Asia-Pacific region expected to attend.

ARDF — as it is known — unlike hidden transmitter hunts so familiar to many Australian amateurs, is more of a sport, combining orienteering and radio direction finding over a set outdoor course. It is one of the fastest-growing amateur radio activities around the world, and in particular the Asia-Pacific region.

In China, ARDF is used to introduce young people to the technologies of electronics and communications, and to the attractions of amateur radio. Contest co-ordinator, Wally Watkins VK4DO, advises that the second IARU ARDF Contest will run from 15 to 20 July, 1996. Accommodation for national and international competitors has been booked at the James Cook University, in Townsville. Invitations have been sent out to all Region 3 amateur radio societies and other regions, and to known interested individuals.

Transmitters used for the ARDF contest operate on 80 m and 2 m. Equipment for next year's contest is already under construction and the first unit has been completed.

Receiving equipment is simple to build and low in cost. Suitable designs have been proven by Ron Graham VK4BRG. Full details can be obtained from Ron (QTHR), including printed circuit boards and construction hints. No parts are really hard to get, advises Wally VK4DO.

Australian competitors are sought, to enter the ARDF Contest. There has been keen interest from Victoria and New South Wales for both the Senior and Old Timer sections, but competitors to enter the women's and junior classifications are wanted.

Further details can be obtained from the 2nd IARU ARDF Contest Secretariat, W A Watkins VK4DO, PO Box 432, Proserpine Qld 4800.

QSP News

Air Forces Amateur Radio Net (AFARN)

Special Event Callsign VI75RAAF

The Australian Air Force was founded by Act of Parliament on 31 March, 1921. It was formed from personnel who had distinguished themselves on the Western Front and in the Middle East as members of the Australian Flying Corps during World War 1. Three months after the formation of the AAF, Royal Assent was received for the title "Royal Australian Air Force" to be adopted. To commemorate the 75th anniversary of the establishment of the RAAF, the Air Forces Amateur Radio Net (AFARN) will be using the Special Event Callsign **VI75RAAF** from 1 February 1996 to 31 December 1996.

A special event QSL card will be mailed to amateurs who make contact with VI75RAAF, upon receipt of a stamped self addressed envelope in Australia, or an SAE with one IRC or $US1.00 for overseas amateurs. The A4 sized award may also be obtained for $AUS5,00 for Australian amateurs, or four IRCs or $US4.00 for overseas amateurs. The usual confirmation of contact is required and short wave listeners may also avail themselves of both QSL card and award.

Look for AFARN operators on all bands and modes on HF frequencies only ending in .75 MHz or thereabouts as spectrum space allows.

Awards Manager

All requests for QSL cards and awards should be addressed to: AFARN Awards Manager, Brian Lavender VK4LV, 7 Lawn Street, Bongaree, Bribie Island, QLD 4507. If you wish to become a member of the Air Forces Amateur Radio Net (AFARN) and become a VI75RAAF operator before the balloon goes up on 1 February 1996, please contact the Secretary, Graham Clayton VK4BGC, 5 Lenz Street, Chermside West, Brisbane, QLD 4032. We actively welcome serving or past members of any of the National Air Forces of the World and short wave listeners, who are currently resident in VK, P29 or ZL. We are particularly interested in enlisting the services of Air Force Amateurs from Western Australia to form a Western Division of AFARN.

Weekly Nets

3.567 MHz, Tuesday 1000 UTC, Northern Division; 3.608 MHz, Tuesday 1030 UTC, Southern Division; 3.605 MHz, Friday 0600 UTC, Southern Division; and 7.085 MHz, Friday 0630 UTC, both Divisions (one hour earlier during daylight saving).

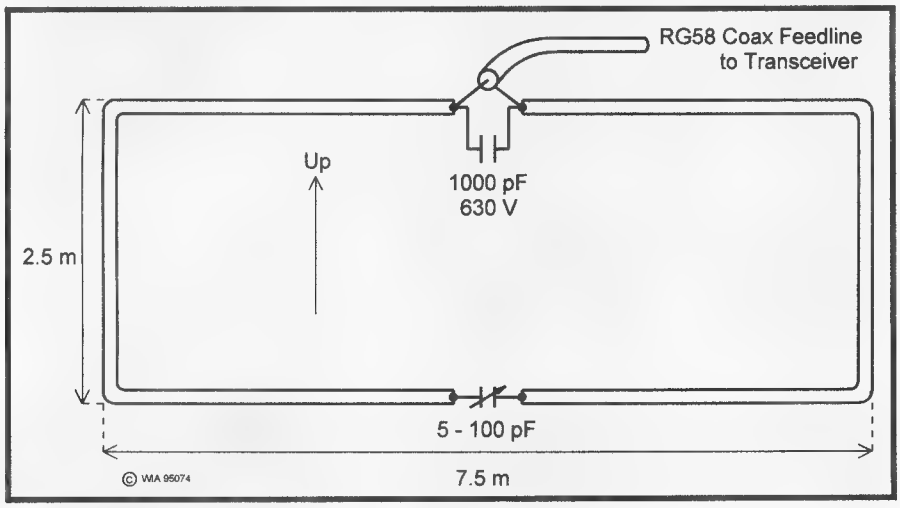
Roy Mahoney VK4BAY
President AFARN

■ Antennas

A Compact 80 m Loop Antenna

Peter Parker VK1PK describes a nifty little 80 m antenna for a confined space.*

It is often difficult to erect a full-size antenna for 80 m when operating from a confined space. While very short tuned feeder dipoles can be made to work on 80 m, their effiency tends to be low *(Moxon:222).* The loop antenna described here occupies little space, yet provides good results for distances of up to about 800 km.



A Compact 80 m Loop Antenna.

There being no reference antenna available, comparative gain figures are unavailable. However, I would estimate that signals from this antenna would be about two S-points down on a dipole. The antenna described here is approximately 10 metres above the ground.

Reference 2 (p298) provided the basic idea for this antenna. The loop is made from coaxial cable; RG8 is preferred because of lower DC losses. This version uses lengths of the thinner RG62A/U. Excluding the feedline, which can be of any length, this antenna uses 20 metres of cable. The length of the element does not appear to be critical, as a previous successful version of this antenna was made from less than 19 metres of cable.

A 1,000 pF polystyrene capacitor is wired across the antenna's feedpoint. This facilitates impedance matching. The one in the prototype is rated at 630 volts, and was salvaged from a piece of valve equipment.

The antenna is tuned by adjusting the variable capacitor at the bottom of the antenna. This capacitor should have widely-spaced plates if you intend to run appreciable power. No arcing has been observed with 50 watts and a capacitor having a 1 mm plate spacing. If you have no suitable capacitor, you may care to experiment with lengths of 300 ohm TV ribbon to obtain a suitable capacitance; the original version of this antenna, described in reference 2 below, uses this technique. While this antenna is balanced, no balun has been found necessary.

You will notice that received signals sound weaker on this antenna than on a full-sized dipole. However, loops pick up less noise than do other antennas, so the signal-to-noise ratio of incoming signals may well be better with the small loop than on a dipole or vertical.

If you wish to work DX on this antenna, you will be disappointed. On the other hand, if you have only a small amount of space and wish to use 80 m, this antenna can provide worthwhile results.

References

1. *Moxon, LA — HF Antennas for All Locations, RSGB, 1982.*
2. *Hawker, P — Amateur Radio Techniques 7th Edition, RSGB, 1980.*

**7/1 Garran Place, Garran ACT 2605*

WIA News

Some Clarification

The US claim for a 2 m distance record of 4333 km for a contact between Hawaii and Washington state last July, reported in *WIA News,* October *Amateur Radio,* page 18, has occasioned correspondence that there have been 2 m contacts over greater distances.

VK4IK wrote that, more than 13 years ago as VK8HW, he contacted JR6LHX for a confirmed distance of 4969.7 km. Since then, according to Federal Technical Advisory Committee Chairman, John Martin VK3KWA, that record has been broken on at least three recorded occasions, the most recent being a contact between VK4BFO and JI7DMB on 15 April 1991, for a confirmed distance of 6763 km, a world record.

These Australia-Japan contacts were all via Class II transequatorial propagation (TEP), an ionospheric mode. The ARRL report cited in October *WIA News* claimed the contact as an "over water" record, apparently involving tropospheric propagation, a distinction made in the US but not made in Australia.

An August *WIA News* item warning about the use of FM below 29 MHz did not make the clear point that this meant wideband FM (16K0F and 16K0G modes). Narrowband FM (6K00F and 6K00G modes) has, of course, been permitted on the HF bands for many years and is permitted in the latest Technical Licence Specifications. It is wideband FM that is not permitted below 29 MHz.

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 12. The value for January is expected to be the same.

ar

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.5	19	14.1	-4	23	18	10	-2
2	17.8	19	14.6	-3	24	19	11	0
3	17.8	20	14.6	0	25	19	11	0
4	17.9	21	14.7	3	26	20	12	0
5	17.8	22	14.5	10	28	21	12	0
6	17.7	23	14.4	19	30	22	13	0
7	17.9	25	14.5	33	34	25	15	1
8	17.7	27	14.3	46	37	26	15	0
9	17.2	28	13.9	50	37	25	14	-2
10	16.6	29	13.3	52	37	24	11	-5
11	16.0	30	12.8	53	36	22	9	-9
12	15.3	30	12.1	53	34	19	5	-14
13	14.8	30	11.7	53	32	16	1	-18
14	13.9	30	10.8	52	29	11	-5	-28
15	12.8	31	9.9	51	25	5	-13	-39
16	11.9	32	9.1	50	21	-1	-22	...
17	11.9	33	9.0	50	22	0	-21	...
18	11.7	31	8.9	44	20	-1	-21	...
19	12.3	26	9.2	28	19	2	-15	...
20	13.8	22	10.2	16	21	9	-4	-24
21	15.5	21	11.7	9	23	14	4	-12
22	16.8	20	12.9	3	24	17	8	-5
23	17.2	20	13.4	-1	24	18	9	-3
24	17.5	19	13.9	-3	24	18	10	-2

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.3	16	16.9	-35	18	19	16	9
2	21.2	16	17.2	-36	18	19	16	9
3	21.6	16	16.0	-34	18	20	17	10
4	21.7	17	17.8	-30	20	21	17	11
5	21.8	17	17.9	-23	22	22	18	11
6	21.7	18	17.7	-12	25	24	19	12
7	21.6	20	17.6	4	29	26	21	13
8	21.8	22	17.7	21	34	29	23	15
9	21.6	24	17.7	35	38	31	24	15
10	21.0	25	16.9	44	40	32	24	14
11	20.3	26	16.2	48	40	31	23	12
12	19.5	27	15.5	50	40	30	22	10
13	18.6	28	14.7	51	39	29	19	7
14	17.9	28	14.0	51	38	27	17	3
15	16.6	29	12.9	51	36	24	13	-2
16	15.4	30	11.8	50	34	20	8	-9
17	14.3	31	10.9	49	31	17	3	-15
18	14.3	30	10.9	47	31	17	3	-15
19	14.2	27	10.8	31	27	14	2	-15
20	15.0	23	11.2	14	24	15	4	-10
21	16.9	20	13.3	-1	23	17	10	-2
22	19.1	18	14.4	-16	21	19	14	5
23	20.5	17	15.8	-25	20	20	16	8
24	21.0	16	16.4	-32	19	19	16	9

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.7	12	10.7	-25	13	8	1	-11
2	13.4	8	10.3	-36	8	4	-3	-16
3	13.9	5	10.5	...	5	4	-2	-14
4	16.1	6	12.1	...	4	6	2	-6
5	18.9	8	13.3	..	3	8	7	1
6	18.7	8	13.1	...	2	8	6	1
7	18.8	8	13.2	...	2	8	7	1
8	18.8	8	13.1	...	3	8	7	1
9	18.9	10	13.2	..	5	10	8	2
10	18.7	11	13.1	...	9	12	9	2
11	18.6	13	13.0	...	13	14	10	3
12	17.9	15	13.2	-28	16	15	10	1
13	17.0	18	13.0	-10	20	16	10	0
14	16.5	20	12.7	6	24	17	9	-2
15	15.7	24	12.1	26	28	18	9	-5
16	14.9	27	11.6	36	29	17	6	-9
17	14.1	28	10.8	40	28	15	2	-14
18	13.6	30	10.4	43	28	14	0	-18
19	13.3	30	10.1	44	27	13	-1	-20
20	14.0	30	9.7	45	29	15	2	-15
21	13.5	26	9.2	30	24	12	0	-18
22	13.1	22	9.1	16	20	9	-3	-20
23	13.2	18	9.1	2	17	8	-3	-19
24	13.8	15	9.6	-11	15	8	0	-14

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.6	16	11.1	-10	16	10	1	-12
2	15.2	13	11.5	-23	14	10	2	-9
3	17.6	13	13.6	-39	12	12	7	-1
4	19.0	12	13.6	...	10	13	10	4
5	18.8	11	13.5	...	7	11	9	3
6	19.0	10	13.5	..	6	10	8	3
7	18.8	10	13.4	...	5	10	8	2
8	18.9	10	13.4	...	6	10	8	3
9	19.4	11	13.7	...	7	11	10	4
10	19.1	12	13.5	...	10	13	10	4
11	18.6	14	13.1	...	13	14	11	3
12	17.8	16	12.5	-26	17	15	11	2
13	17.1	18	11.9	-12	20	16	10	0
14	16.3	20	11.3	4	23	17	9	-2
15	15.9	24	11.0	23	27	19	9	-4
16	15.2	27	10.5	35	29	18	7	-7
17	14.6	28	10.1	40	29	17	5	-11
18	14.1	29	9.8	43	29	16	3	-14
19	13.9	30	9.8	45	29	15	2	-15
20	14.3	30	10.1	45	30	17	4	-13
21	14.4	28	10.0	37	28	16	4	-12
22	14.1	25	9.8	25	24	13	2	-14
23	14.2	22	10.0	14	22	12	2	-13
24	14.9	20	10.5	3	21	13	4	-9

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.4	20	10.3	10	19	8	-4	-21
2	13.8	17	10.5	-4	16	8	-2	-18
3	16.0	14	12.6	-21	15	11	4	-7
4	19.1	13	14.6	-39	14	14	10	2
5	20.0	13	14.8	...	12	14	12	5
6	20.1	12	16.5	...	10	13	11	5
7	20.2	12	16.5	...	9	13	11	5
8	20.0	12	16.3	...	9	13	10	4
9	20.0	12	16.2	...	10	13	11	4
10	20.2	13	16.4	...	12	14	12	5
11	19.9	14	16.4	...	14	16	12	5
12	19.4	16	15.6	-25	19	18	13	5
13	18.7	18	15.0	-6	23	19	13	4
14	18.0	21	14.4	11	27	21	13	2
15	17.1	24	13.6	31	31	22	13	0
16	16.6	26	13.1	40	32	22	12	-2
17	15.8	28	12.8	44	32	20	9	-6
18	15.0	29	11.7	46	31	18	6	-11
19	14.2	30	10.9	47	30	15	2	-16
20	13.7	30	10.4	46	28	13	0	-20
21	13.4	30	10.2	46	28	12	-2	-22
22	14.1	30	10.6	47	30	15	2	-16
23	14.2	28	10.8	39	28	14	1	-16
24	13.6	25	10.3	25	23	11	-2	-20

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	24.3	15	19.7	-32	21	23	20	14
2	25.0	14	19.3	-36	20	22	20	14
3	25.9	13	20.2	-38	20	22	20	15
4	26.8	13	20.4	-36	21	23	22	17
5	27.8	14	21.2	-31	23	25	23	19
6	27.8	17	22.2	-22	26	28	26	22
7	26.8	18	21.9	-8	29	29	27	21
8	25.5	19	21.3	12	34	31	27	21
9	24.5	21	19.8	34	39	34	28	20
10	23.5	22	18.9	42	41	34	27	18
11	22.7	23	18.1	47	41	34	26	16
12	22.2	20	16.9	50	40	31	23	12
13	20.1	21	15.3	52	38	28	17	4
14	17.8	22	13.5	51	34	21	8	-8
15	15.7	23	12.1	49	29	13	-2	-23
16	14.4	24	10.9	48	25	6	-12	-36
17	13.2	25	10.1	47	20	-1	-22	..
18	11.3	26	8.6	44	9	-19	...	...
19	8.7	28	6.7	37	-16	...	...	..
20	8.9	27	6.9	37	-13	...	...	...
21	13.4	20	10.2	29	17	-1	-19	...
22	20.5	16	15.9	9	28	22	15	3
23	22.8	17	18.2	-11	26	24	20	13
24	23.4	16	18.9	-24	23	23	20	13

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.3	15	15.5	-37	16	16	12	4
2	19.6	14	15.9	...	15	15	12	4
3	20.2	14	16.7	...	15	16	13	6
4	20.5	15	16.9	...	15	17	14	7
5	20.6	15	16.9	...	16	18	14	7
6	20.5	16	16.8	-32	18	19	15	8
7	20.2	17	16.5	-20	21	20	16	7
8	20.2	19	16.5	-3	26	23	17	9
9	19.9	23	16.1	30	34	27	20	9
10	19.3	25	15.6	41	37	28	19	8
11	18.7	25	15.0	45	37	27	18	5
12	18.0	24	14.4	48	35	23	12	-2
13	17.2	21	13.1	49	32	18	5	-13
14	15.2	22	11.5	48	26	9	-7	-29
15	13.5	23	10.4	46	19	-1	-22	...
16	12.5	23	9.5	44	14	-9	-32	...
17	11.7	24	8.9	43	9	-18	...	...
18	10.0	25	7.7	39	-4	-39	..	...
19	7.7	26	6.0	30	-36	...	...	...
20	7.8	26	6.1	31	-34	...	...	...
21	11.9	19	9.0	27	8	-15	-38	...
22	17.2	18	13.1	8	24	16	7	-6
23	18.7	17	14.4	-14	21	18	12	2
24	19.0	15	15.0	-28	18	17	12	3

VK WEST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.3	17	17.7	-22	23	22	18	11
2	22.7	16	18.3	-30	21	22	18	12
3	23.8	15	18.7	-34	20	22	19	13
4	25.2	14	19.2	-36	20	22	20	15
5	26.1	14	19.8	-35	21	23	21	16
6	27.2	15	20.7	-30	23	25	23	19
7	26.9	18	21.7	-22	26	28	26	21
8	26.2	19	21.4	-8	29	29	26	21
9	25.5	20	20.7	14	35	32	28	21
10	24.5	22	20.4	40	41	35	30	21
11	23.6	23	19.1	47	42	35	29	20
12	22.7	23	18.2	50	42	35	27	17
13	21.9	22	17.0	52	41	32	24	13
14	20.2	21	15.4	52	39	28	18	4
15	17.8	22	13.5	51	34	21	8	-9
16	15.7	22	11.9	49	29	12	-4	-25
17	14.3	23	10.9	48	23	4	-14	...
18	13.1	23	10.0	47	18	-5	-26	...
19	11.2	24	8.6	43	5	-25	...	...
20	8.6	26	6.7	35	-22	...	...	...
21	8.9	26	6.9	36	-19	...	...	...
22	13.4	21	10.4	37	17	-3	-23	...
23	20.0	17	15.4	7	27	22	14	3
24	21.9	18	17.1	-10	25	24	19	11

VK EAST — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.1	-1	7.1	-17	0	-16	-34	...
2	8.1	-8	6.4	-20	-2	-18	-37	...
3	7.7	-14	6.1	-22	-2	-18	-36	...
4	8.5	-12	6.5	-29	-1	-13	-29	...
5	10.8	-4	8.6	...	1	-5	-16	-34
6	14.1	2	11.2	...	3	1	-5	-17
7	16.7	6	13.4	...	4	6	2	-7
8	19.0	9	15.3	...	7	10	7	0
9	20.4	12	16.6	...	13	15	11	4
10	21.2	16	16.8	-9	23	21	16	8
11	20.8	19	16.9	16	30	25	18	8
12	19.9	21	16.0	36	34	26	17	6
13	18.0	23	14.5	41	33	22	12	-2
14	15.3	25	12.2	43	28	14	0	-18
15	12.4	27	9.9	42	19	0	-19	...
16	9.9	29	8.0	38	6	-22	...	...
17	8.5	29	6.7	35	-6	...	...	...
18	7.7	30	6.1	33	-14	...	...	...
19	7.7	30	6.0	32	-14	...	...	...
20	7.8	30	6.0	33	-14	...	...	...
21	7.9	25	6.0	27	-10	...	...	...
22	7.7	17	6.0	16	-7	-37	...	...
23	8.9	10	6.9	3	-1	-23	...	...
24	9.4	5	7.3	-8	0	-17	-36	...

VK SOUTH — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.9	5	7.6	-13	2	-12	-29	...
2	8.9	-3	7.0	-21	0	-15	-32	...
3	8.4	-10	6.6	-26	-1	-15	-31	...
4	9.4	-9	7.2	-37	0	-9	-23	...
5	12.2	-2	9.7	...	1	-2	-10	-24
6	15.9	3	12.7	...	1	3	0	-9
7	18.6	6	15.0	...	0	6	4	-1
8	20.7	8	16.8	...	1	8	8	3
9	21.4	10	17.4	...	4	11	10	6
10	21.2	13	17.1	...	9	14	13	8
11	20.6	17	16.6	-31	18	19	16	9
12	19.9	21	16.0	5	28	24	18	9
13	19.2	22	15.3	31	32	24	16	4
14	16.4	23	13.1	37	30	18	6	-9
15	13.5	26	10.6	40	23	6	-9	-32
16	10.8	28	8.8	40	12	-12	-35	...
17	9.3	29	7.3	37	2	-27	...	...
18	8.6	30	6.7	35	-4	-38	...	...
19	8.5	30	6.6	35	-5	-39	...	...
20	8.5	30	6.5	35	-5	-39	...	...
21	8.6	28	6.6	33	-4	-36	...	...
22	7.8	19	6.0	20	-11	...	...	...
23	8.4	13	6.5	10	-4	-31	...	...
24	10.1	11	7.8	-2	4	-12	-31	...

VK WEST — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	10.3	14	8.0	6	4	-14	-34	...
2	9.3	5	7.3	-6	-1	-20	...	...
3	8.8	-2	6.9	-16	-3	-20	...	...
4	10.0	-2	7.5	-29	0	-12	-27	...
5	13.1	2	10.5	...	3	-1	-10	-25
6	17.1	6	13.7	...	4	5	1	-7
7	20.0	7	16.1	...	3	8	6	0
8	22.2	8	18.0	.	3	10	9	5
9	23.4	9	19.1	...	4	11	11	7
10	23.9	10	19.0	...	7	13	13	9
11	23.4	12	19.1	...	13	16	14	9
12	22.6	14	18.2	-17	22	21	17	10
13	20.7	18	16.6	18	30	24	17	6
14	17.6	21	14.0	33	30	19	9	-4
15	14.6	23	11.5	37	24	10	-4	-24
16	11.7	26	9.6	39	15	-6	-27	...
17	10.1	28	7.9	38	6	-20	...	...
18	9.3	29	7.2	37	0	-30	...	...
19	9.2	29	7.0	36	-1	-32	...	...
20	9.1	29	7.0	36	-1	-33	...	...
21	9.2	29	6.9	36	-1	-32	...	...
22	9.3	29	7.3	37	1	-29	...	...
23	8.8	26	6.7	30	-3	-35	...	...
24	8.9	18	6.9	18	-2	-29	...	...

VK EAST — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.6	-9	6.4	-25	0	-12	-27	...
2	9.2	-2	7.0	-20	1	-11	-26	...
3	9.7	3	7.4	-15	2	-10	-25	...
4	9.4	6	7.2	-7	2	-13	-29	...
5	8.4	8	6.6	2	-1	-21	...	...
6	8.0	12	6.3	10	-3	-28	...	...
7	8.8	22	7.0	23	1	-23	...	...
8	11.3	25	9.0	32	14	-4	-23	...
9	12.0	26	9.2	31	20	5	-9	-29
10	12.5	18	9.4	5	15	5	-6	-23
11	15.6	12	12.3	-29	12	10	4	-6
12	17.4	10	13.8	...	7	10	7	1
13	16.6	5	13.4	...	1	6	4	-2
14	15.6	1	12.2	...	-2	3	1	-4
15	14.7	-3	11.3	...	-4	1	0	-6
16	14.2	-5	10.8	...	-5	0	-1	-7
17	13.9	-6	10.4	...	-5	0	-2	-8
18	12.8	-8	10.1	...	-3	-1	-6	-15
19	10.2	-16	8.0	...	-1	-3	-11	-24
20	8.8	-32	6.8	...	-7	-12	-23	...
21	8.0	-39	6.2	...	-9	-18	-31	...
22	8.0	-28	6.1	...	-4	-13	-27	...
23	8.0	-19	6.1	-32	0	-11	-24	...
24	8.2	-14	6.2	-28	0	-12	-26	...

VK SOUTH — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.0	-11	6.1	-21	-2	-16	-32	...
2	8.5	-5	6.5	-18	-1	-16	-33	...
3	8.8	0	6.8	-12	-1	-17	-35	...
4	8.5	3	6.6	-5	-2	-21	...	...
5	7.6	5	5.9	3	-8	-33	...	...
6	7.1	10	5.6	10	-13	...	...	...
7	7.7	21	6.1	21	-11	...	...	...
8	9.7	23	7.7	27	4	-20	...	...
9	11.0	25	8.5	33	13	-7	-26	...
10	8.5	22	6.6	24	-2	-29	...	...
11	8.7	14	6.7	10	0	-23	...	...
12	13.1	12	10.3	-12	11	2	-8	-24
13	15.4	10	10.9	...	9	9	4	-4
14	14.7	3	10.2	...	3	5	1	-7
15	14.0	-1	9.8	...	-1	2	-1	-9
16	13.7	-4	9.6	...	-3	1	-2	-9
17	13.7	-5	9.7	...	-3	0	-4	-12
18	11.6	-10	9.2	...	-2	-3	-9	-20
19	9.2	-34	7.3	...	-11	-16	-27	...
20	7.8	...	6.1	...	-26	-36	...	...
21	7.1	...	5.5	...	-33	...	...	...
22	7.1	...	5.5	...	-27	...	...	...
23	7.2	...	5.6	...	-18	-34	...	...
24	7.5	-25	5.8	-32	-7	-21	-38	...

VK WEST — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.7	-36	5.9	...	-12	-25	..	...
2	8.1	-16	6.3	-29	-3	-15	-29	...
3	8.4	-12	6.5	-25	-3	-16	-31	...
4	8.1	-10	6.3	-19	-4	-19	-37	...
5	7.1	-10	5.6	-11	-8	-28	...	...
6	6.8	-7	5.3	-5	-11	-36	...	...
7	7.2	1	5.7	0	-11	-37	...	...
8	9.0	10	7.2	5	-2	-23	..	...
9	11.7	15	9.4	12	9	-7	-23	...
10	10.7	20	8.3	22	8	-10	-28	...
11	8.8	15	6.8	13	-1	-23	...	...
12	9.3	9	7.2	0	1	-16	-35	...
13	13.4	7	10.5	-26	6	1	-8	-22
14	16.0	5	10.8	...	4	5	2	-5
15	15.2	0	10.5	..	-2	2	0	-7
16	14.5	-4	9.9	...	-4	0	-3	-10
17	13.8	-6	9.4	..	-5	-3	-7	-16
18	11.0	-14	8.8	..	-4	-5	-12	-24
19	8.7	...	6.9	...	-18	-24	-36	...
20	7.4	..	5.8	...	-36	...	...	...
21	6.7	..	5.2	...	...	...	...	...
22	6.7	..	5.2	...	...	..	...	...
23	6.8	..	5.3	...	-37	...	...	...
24	7.2	...	5.6	...	-25	-39	...	...

VK EAST — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.8	-7	5.9	-14	-4	-23	...	...
2	7.4	-16	5.7	-21	-4	-22	...	...
3	10.4	-5	8.0	...	0	-7	-19	-38
4	16.4	5	12.6	...	3	5	0	-8
5	22.4	8	17.2	...	2	9	9	5
6	25.6	9	19.4	...	1	10	12	10
7	25.6	10	19.9	...	1	11	13	11
8	25.2	12	20.5	...	4	13	15	13
9	24.5	14	20.3	...	9	16	16	13
10	23.7	16	19.1	...	17	20	19	14
11	22.8	19	18.3	-13	25	24	21	15
12	22.0	21	17.6	14	32	28	23	15
13	21.4	24	17.0	35	37	30	24	15
14	20.7	24	16.4	41	37	30	23	13
15	18.7	22	14.1	44	35	24	14	1
16	15.6	25	11.7	45	30	16	3	-14
17	13.9	26	10.4	44	25	9	-6	-27
18	12.9	27	9.6	43	22	4	-12	-35
19	12.2	28	9.1	42	20	0	-17	...
20	11.5	29	8.5	42	17	-4	-24	...
21	10.9	26	8.0	33	13	-8	-29	...
22	10.1	20	7.7	18	7	-13	-34	...
23	10.7	15	8.3	5	8	-8	-26	...
24	9.9	7	7.5	-8	3	-12	-30	...

VK SOUTH — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.5	-6	5.7	-9	-7	-29	...	...
2	7.1	-16	5.5	-16	-7	-27	...	...
3	10.5	-4	7.8	-38	1	-8	-20	...
4	17.2	6	13.3	...	3	6	2	-6
5	21.7	10	17.9	...	2	10	10	7
6	21.9	10	17.9	...	0	9	10	8
7	21.7	10	17.7	...	0	9	10	7
8	21.7	10	17.6	...	1	9	10	8
9	21.9	11	17.8	...	3	11	12	9
10	21.7	13	17.5	...	8	14	14	9
11	21.1	16	17.0	...	16	18	16	10
12	20.4	20	16.3	-8	24	23	18	11
13	19.6	23	15.6	23	32	26	20	10
14	18.6	25	14.8	35	34	27	19	8
15	18.0	26	14.3	41	35	26	18	6
16	16.8	23	12.7	44	31	19	8	-8
17	15.0	25	11.2	44	28	13	0	-19
18	13.8	26	10.3	44	25	8	-7	-29
19	13.0	27	9.7	43	22	4	-13	-36
20	12.1	28	9.0	42	19	-1	-20	...
21	11.3	28	8.5	39	15	-7	-27	...
22	11.2	23	8.4	26	12	-7	-26	...
23	11.2	18	8.4	14	10	-7	-25	...
24	9.8	10	7.4	-1	3	-15	-34	...

VK WEST — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.0	5	5.4	5	-17	...	...	...
2	6.7	-7	5.2	-4	-16	...	...	...
3	9.6	0	7.1	-19	-1	-17	-36	...
4	15.4	7	11.9	...	7	4	-4	-17
5	21.0	8	16.2	...	8	11	8	2
6	21.8	9	16.6	...	6	11	10	4
7	22.5	9	17.6	...	5	11	10	6
8	22.4	10	17.8	...	5	12	11	7
9	22.1	12	18.0	...	7	13	12	8
10	22.0	13	17.9	...	10	14	13	9
11	21.5	14	17.8	...	14	17	15	9
12	20.9	17	16.8	-15	22	21	17	9
13	20.2	21	16.2	20	31	26	19	9
14	19.5	23	15.6	35	34	26	18	7
15	17.8	21	13.4	40	31	20	9	-6
16	14.9	23	11.2	42	26	10	-4	-24
17	13.3	25	10.0	43	21	2	-15	-39
18	12.3	26	9.2	42	17	-3	-23	...
19	11.6	27	8.7	42	14	-8	-30	...
20	10.9	27	8.1	40	10	-14	-38	...
21	10.2	28	7.7	39	6	-21	...	...
22	10.2	28	7.6	39	6	-21	...	...
23	9.9	26	7.6	33	5	-22	...	...
24	9.1	18	6.9	18	-2	-30	...	...

VK EAST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.2	4	10.7	...	4	1	-6	-19
2	12.1	3	9.2	-37	4	-3	-14	-31
3	11.0	4	8.3	-22	4	-7	-22	...
4	10.5	8	7.9	-8	4	-10	-27	...
5	10.3	14	7.7	5	5	-13	-32	...
6	10.0	19	7.5	18	5	-16	-38	...
7	9.9	25	7.5	30	6	-19	...	...
8	10.3	27	7.8	35	9	-15	-39	...
9	10.7	28	8.1	39	12	-12	-34	...
10	10.0	29	7.6	39	8	-18	...	...
11	8.5	31	6.5	36	-3	-36	...	...
12	8.1	31	6.2	35	-8	...	...	...
13	10.0	29	7.4	39	7	-19	...	...
14	8.8	31	6.8	37	0	-32	...	...
15	9.0	24	6.9	26	0	-27	...	...
16	13.4	18	10.2	10	16	4	-9	-29
17	14.3	15	10.9	-14	15	9	0	-14
18	14.8	10	11.2	-38	10	7	1	-10
19	17.1	9	12.9	...	6	8	5	-2
20	20.0	9	15.3	...	3	9	9	4
21	22.1	8	17.1	..	1	8	8	4
22	22.6	7	17.1	..	0	8	8	4
23	20.1	6	15.2	...	0	6	5	0
24	17.1	5	13.0	...	2	5	1	-7

VK SOUTH — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.7	5	11.9	...	4	4	-1	-11
2	13.4	5	10.1	...	5	0	-8	-22
3	12.1	6	9.1	-26	6	-2	-14	-33
4	11.5	9	8.7	-13	7	-5	-19	...
5	11.1	13	8.3	1	8	-7	-24	...
6	10.7	18	8.0	14	8	-10	-30	...
7	10.4	25	7.9	30	8	-14	-36	...
8	10.7	27	8.1	36	11	-11	-34	...
9	11.0	28	8.3	39	13	-9	-31	...
10	10.1	29	7.7	39	8	-17	...	...
11	8.3	31	6.4	35	-5	-39	...	...
12	7.9	31	6.1	34	-9	...	...	...
13	10.2	29	7.6	39	9	-16	...	...
14	10.9	30	8.4	41	15	-7	-28	...
15	11.4	23	8.7	25	14	-3	-21	...
16	15.0	18	11.4	1	19	11	2	-12
17	14.4	13	10.9	-26	13	9	1	-11
18	15.2	9	11.3	...	8	7	2	-7
19	17.2	8	13.5	...	4	8	5	-1
20	19.5	8	14.6	...	1	8	8	3
21	21.1	9	16.1	...	-1	8	9	6
22	21.6	9	16.8	...	-1	8	9	7
23	21.9	7	16.6	...	0	7	7	4
24	18.9	6	14.3	...	2	6	4	-2

VK WEST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.9	0	10.4	...	1	2	-3	-13
2	11.9	-2	9.0	...	2	0	-9	-23
3	10.8	-2	8.1	...	3	-3	-14	-31
4	10.4	0	7.8	-30	4	-5	-18	-38
5	10.1	4	7.6	-18	5	-7	-22	...
6	9.9	9	7.4	-7	5	-9	-26	...
7	9.8	15	7.4	5	6	-11	-31	...
8	10.3	21	7.7	18	10	-9	-29	...
9	10.8	27	8.1	32	14	-7	-27	...
10	10.1	29	7.7	36	11	-12	-35	...
11	8.7	32	6.7	37	2	-27	.	...
12	8.3	33	6.4	37	-1	-34	...	...
13	10.1	32	7.5	41	12	-13	-36	...
14	11.8	31	9.2	43	21	2	-16	...
15	10.0	29	7.7	33	11	-11	-33	...
16	10.5	21	8.1	16	12	-6	-24	...
17	14.7	18	11.6	-5	18	11	1	-13
18	14.9	14	11.4	-30	14	11	5	-6
19	14.3	9	10.8	..	9	8	2	-8
20	15.0	6	11.3	...	4	7	3	-5
21	17.1	6	13.5	...	1	7	6	1
22	19.4	8	14.7	...	-2	7	8	5
23	19.9	6	15.0	...	-2	6	6	2
24	16.9	4	12.7	...	0	5	2	-4

HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Aplha Tango Products, Perth; Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 Mb of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● HAM LOG v.3.1 — Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE NSW

● POWER supplies ex Govt 13.8 V 4A, $50 posted. David VK2BDT Goulburn (048) 21 5036.

● TELEREADER model CWR 685 and Keyboard CWK 685 with manual and new regulated power supply, $275. Nick L20106 QTHR.

● JAYBEAM 10Y/2M ten elements with balun, $80; CDE Ham II rotator system with 33 m eight core cable, $400; DUMMY load 1 kW HN31, $30. Ron VK2BKN (044) 73 9270.

● YAESU FT1, vgc, put me on Honor Roll, tech manual, $1,000; YAESU FC902 ATU, $200; HEIL speaker, $50; KENWOOD PS30, $100; HAM oscilloscope LBO-310, $200; ROVER color 12 V TV 6", $150. Arthur VK2DTH QTHR (076) 76 3153.

● HAMSHACK or soundproof studio, fibreglass modular design 2.4 m x 2.4 m x 2.4 m in size. On wheels, white in colour, 2 large windows (1 fixed, 1 opens), recessed electrical conduits for wiring, good condition, $600 ono. Bruce VK2TBL (018) 86 2175 or (02) 632 1757.

● NATIONAL HRO dial and in-line gearbox, gc $50; TRANSFORMER 1.5 kVA, primary 170-260 V tapped each 10 V, secondary 100 V 15 amps, in steel case with voltmeter, $100. Buyer collects, very heavy! Keith VK2AXN QTHR (02) 489 0304.

● YAESU 2 m linear amp FL2050, IHO20094 instr sheets, $150; YAESU 207R handheld t/m, OK120265, instr man, battery charger, $100; REGULATED power supplies, Ferguson Transwest, 13.8 V 2 amp, $45 ea; REALISTIC dynamic desk mike, $30; ARLEC batt charger 240 to 6-12V, $20; KINGRAY low pass filter, $20. Licd Amats only, H Chapman VK2BHC (02) 644 1929.

● TOWER ext 6 m — 10 m 200 x 200 x 200 base and house on half acre 66 x 132 ft, ideal for ham, large garage/wksp, 17 sq under one roof, 3 bed, b/v, facilities for additional antennas. VK2EJW Tinomee Village (065) 53 1365.

● 3 METRE KU band mesh dish on inclined orbit polar mount fits 3" ID water pipe, $1,190; 2 CHAPARRAL 20 degrees K, 4 GHz LBNs, $195 ea. John VK2WW QTHR (02) 546 1927.

● ALINCO 2 m handheld ALX2T, s/n 31073328, with charger cradle, new battery fitted, vgc, $220. Bruno VK2BPO QTHR (02) 713 1831.

● COMPLETE Yaesu FT-102 station for sale includes FT-102 transceiver, FC-102 1500 watt antenna tuner, SP-102 speaker, FV-102DM digital VFO, handbook and service manual, spare 6146 finals, includes WARC bands, the lot $900. Horrie Young VK2AMZ (043) 41 9877.

● YAESU FT290R (not MKII) s/n 5G450057, 2 m all mode portable, complete with manual, vinyl case, YH-1, SB-2, YHA-15, MMB-11, YM-49 speaker mic, YM-47 std mic and Alinco ELH-230D 30 W linear amplifier (with Rx preamp), will not separate $650; VK POWERMASTER MKII 25 A 13.8 V power supply, fully built, $220; FM-828/25 AMK2, $25; ARRL Computer Networking Conference papers, Volumes 1 through 11 (8 books), will not separate, $80, additional copy of Volume 10, $10; ARRL Handbook 1986, $20; ARRL Antenna Handbook, $8; ARRL QRP Notebook, $5; FOUR BATVG books, $20. Steve VK2QZ QTHR (02) 476 1845 after 7pm or (02) 9928 1188 (ext 150) BH.

● KENWOOD TS-830S s/n 1041993 with VFO240, two sets new finals and drivers, service manual, MC50 mic package, $1,200; BENCHER paddle and Daiwa DK210 keyer package $250. All VGC. Take delivery from QTH please. Kevin VK2JS QTHR (02) 44 3279.

● ICOM transceiver IC720A, s/n 13507, $650; ICOM power PS20, s/n 05785, $200; HY-POWER coupler HC200, s/n 829224, $100; MIC desk ICSM5, $50; MIC mobile ICHM7, $50; ANT vert 5CE5SS, $100; ANT mobile Yaesu RS, $50; KEYER electronic Daiwa DK210, $50. Total cost $1,250. John VK2AJX (048) 61 3964.

● TOWER, HILLS winch-up cyclonic, 13 m, galvanised, Rotator Kenpro KR1000, Antenna Tet-emtron TE46 6 band with coax, 2 yrs old $1,300. Rod VK2BRW (0755) 24 3722 Tweed Heads.

● DECEASED ESTATE VK2FJF. KENWOOD TS830S $575; VFO230 $100; YAESU FTDX401 $250. All EC with manuals and circuits. EMTRON EAT300A ATU, vernier knobs, $200; KENPRO squeezekey KP100, $100; CLIPSAL key, $60; PORTABLE HF whip, RSGB design with feedline, $120; ASSORTED short coax leads, $10 the lot; 6.5 METRE mast with 80/40 dipole, offers. David VK2AYO QTHR (068) 88 5265.

FOR SALE VIC

● KENWOOD TS-930S HF transceiver, in-built auto-ATU, switchable narrow filters, excellent condition, little used, original carton, handbook and workshop manual, $1495 ono. VK3BR QTHR (03) 9584 9512.

● ICOM auto ant tuner IC-AT500 s/n 3671, $400; ICOM 27A 2 m mobile, $350; PAKRATT 232 model PK-232 (not MBX), $350; MODEM Maestro 2400ZXR, $30. Maxwell VK3BAX QTHR Geelong (052) 29 7401.

● ICOM ICW2A dual band hand-held radio, with leather case, extra battery, charger, speaker/microphone, DC power lead, all in carry case, $650. Kerry VK3KFC (054) 60 4726.

● BARGAINS, ICOM 735 100 W H/F, $850; MFJ 949D tuner, $220. Ken VK3WAL (051) 52 3984.

● TOWER, 8 sections, winch, new s/s cable, 4 mm carriage, rotator, guys, anchor plates, $350; 204BA Homebrew 4 el mono 20 m beam, no sag, 1.5 kW balun, indomatch coax, $300: The lot, $590. W Timmermans VK3BTQ, 6/12-14 Barton Ave, Ferntree Gully Vic 3156.

● KENWOOD TS130SE 100 W HF transceiver, WARC bands, opt. fan, mic, manual, Shinwa LP filter, mint condition, $550. Alan VK3AMT (03) 9789 9106.

● 13.6 VOLT 20 amp continuous (25 A peak) regulated power supply. Well cased and metered with foldback current limiting. Circuit supplied, $300. H Hepburn VK3AFQ QTHR (03) 9596 2414.

● KENWOOD TM731A dual band xcvr, 2 m/70 m, vgc, $950; KENWOOD TS811A 70 cm base xcvr, vgc, $1,050. Bill VK3WK QTHR (055) 65 9348 or (018) 52 8477.

● YAESU FT1 HF transceiver with mike, vgc, recently realigned, $1,100; YAESU FRG-7 communications receiver, exc cond, $200. Laurie VK3DPD QTHR (03) 9818 6009.

● CODAN type 7208 antenna tuner, suit end fed antenna 12 to 30 metres long, $120. Fred VK3JM QTHR (03) 9801 4972.

● ANTENNA HY-GAIN TH6-DXX tri-band, only been erected 2 years and still in use, $700 ono. Bob VK3CF (03) 336 3985.

● YAGI antenna, Chirnside CA-33 Tri-band beam, 10/15/20 m, with assembly and technical information, $220. Lex VK3AIL (03) 9570 5994.

● TELEPRINTER Texas Instruments silent 700 model 74S with acoustic coupler modem option, C/W user and tech manual, uses thermal (fax) paper, vgc, suit packet, RTTY or cheap serial printer, $80. Terry VK3ZXY QTHR (03) 9592 3514.

● TELEPRINTERS, one Siemens S100 inc big box of spares, cables, manual, etc. vgc, $30; one Teletype model 15, $20; COAX Connectors, Andrew type 44AW and type 44AN, half-inch heliax N type, $7 each. Tony VK3ZMP (03) 9700 5447 or (0411) 14 4447.

FOR SALE QLD

● YAESU FV-901DM scanning VFO, ideal for split operation with Yaesu FT101ZD, as new instruction manual, original packing case, $250. VK4CPA QTHR (0755) 73 1234.

● ICOM AH-3 remote tuner for devoted use with any recent ICOM radios, eg 725, 726, 728, 729, etc. Can be mounted externally, PC, $420. Doug VK4OE (07) 3234 1169 BH or (07) 3391 5526 AH.

● FL-7000 SOLID state no-tune auto band-changing 1.8 — 30 MHz linear amp, built-in auto ATU facility for auto antenna selection (4 ants), dual fans, legal limit, plus dream to use, book, cables, original carton, vgc, $3,000 ono. Alan VK4AAR (076) 85 2417.

● APR-18A 8 band HF radial kit, $100; IF-232C Kenwood interface, $100; KPC-3 Kantronics packet, $200. Richard VK4DIC (07) 3264 1655.

● HIGH voltage electros 2500 MFD 400 VW 450 VP, $10 each; PLASTIC capacitors 160 MFD 2250 volts working, $100 each; ELECTRO 75000 MFD 75 VW 30 A ripple, $20 each. John VK4KK QTHR (07) 3269 6647.

● YAESU FT7 serial No 090175 complete with mike, mobile bracket, handbook, vgc, one owner, $350. Jack VK4BXC QTHR (076) 35 5486.

● YAESU FT-726R satellite transceiver complete with 6 m, 2 m and 70 cm modules. Full duplex with internal duplexer, ideal for satellite new comers. Excellent condition, $1,950. Will VK4XP QTHR (079) 79 3101.

● TOWER 40FT approx, extendable, incl guywires and beams, dismantled ready to go, $250 ono. Andy VK4KYM (015) 98 8358 located Gold Coast.

● SHACK Clearance, Sundays, 97 Jubilee Terrace, Bardon. Books, ARA EA magazines, CRO and tubes, PSUs, meters, chokes, HV transformers, TX/RX capacitors, microphones, components, generators, general items, no valves. Contact Peter Hadgraft (07) 3397 3757 AH.

FOR SALE TAS

● YAESU 411E 2 m FM hand-held, 5 W, speaker mike, 12 V power pack and charger, case, manual, original box and standard extras, $390 ono. Martin VK7ZBG QTHR (002) 65 3106.

● KENWOOD TS690S 160-6 m inc auto-ATU, as new condition, box and manuals; EMOTATOR 1211 bottom mtg bracket suit 105TSX; 103TS Emotator rotator, new. Allen VK7AN (003) 27 1171.

WANTED NSW

● MULTIMATE Advantage II boot disk, also two plastic gear wheels for Eddystone 770R dial drive. John VK2BJU QTHR (02) 673 4305.

● CURTIS chip 8043 or 8044. K Harvey VK2BKH QTHR.

● DESK top microphone suit Yaesu FT101E. Bill VK2ATP QTHR (02) 9971 7151.

WANTED VIC

● SELSYNS, 50 Hz transmitter/receivers preferred but will consider 400Hz. Morris VK3DOC (03) 9824 8988.

● KENWOOD PS-53 or PS-50 PSU; COPY op manual Kenwood TS-670 quad bander. Damien VK3CDI (054) 27 3121.

● KENWOOD linear amp TL120, fair price for unit in good condition. Len VK3LEN (053) 56 2368.

● INFORMATION regarding source of Nicad 270 mAh cells to rebuild ICOM BP3 battery packs. Tony VK3CTM QTHR (054) 39 3230.

● MORSE KEYS wanted by Morse students in small radio club. Prefer PMG style, Clipsal or WT8 amp type. Reasonable price paid. Drew VK3XU QTHR (03) 253 6199 BH or (03) 722 1620 AH.

WANTED QLD

● KENWOOD TS660 all mode quad bander, good working order; ICOM 502 SSB t/ceiver 6 m, must be working condition. Prices to Gordon VK4KAL QTHR or (079) 85 4168 nights after 8pm.

WANTED SA

● ICOM IC-251A or IC-271A 2 m transceiver. Must be in good working condition and appearance, with manual. Eric VK5LP QTHR (085) 751 531.

● INTERNAL preamps for ICOM IC471, IC271; SERVICE manual ICOM IC471. Frank VK8FT (089) 83 2954.

MISCELLANEOUS

● THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon. Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

● WILL GIVE AWAY to a good home Rola 33B MKII magnetic tape reproducer, s/n 1160 1167. Yuri VK5ZYS QTHR (08) 45 8492.

● C64/128 OCL Library. Please note New QTH for catalog, send SAE plus 3 x 45 c stamps to OCL Librarian, 18 Coniston Ave, Berwick Vic 3806.

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Amateur Radio Readership Survey

The Publications Committee is responsible for producing *Amateur Radio* as a journal to meet **your** needs. What **are** your needs? Help us find out! Please complete this questionnaire and photocopy it (or, as a last resort, cut it out), then send to the **WIA Publications Committee, PO Box 2175, Caulfield Junction VIC 3161**. You can enclose it with your annual WIA subscription if it is now due, fax it to (03) 9523 8191, or simply post it.

All responses received before 14 January 1996, which are identified with the member's callsign or SWL number, will be entered into a competition for one year's free WIA membership.

Although statistical results of this survey may be published, individual responses are confidential. Thank you in anticipation of your assistance.

(Please ignore the underlining of certain characters, and the italic numbers in question 7 - they are to assist in collation of survey responses.)

1. Callsign or SWL number

.....

2. What is your age group? (circle one)

Less than 20 21-30 31-40 41-50 51-60 61-70 70+

3. How many years have you been a licensed radio amateur? (circle one)

Less than 1 1-5 6-10 11-20 21-40 Over 40

4. How much of the contents of *Amateur Radio* do you read each month? (circle one)

1-10% 11-20% 21-50% 51-80% Over 80%

5. How do you rate *Amateur Radio* for presentation, clarity, and readability? (circle one)

Excellent Very good Good Satisfactory Poor

6. In regard to technical content only, how do you rate Amateur Radio? (circle one)

Too technical About right Not technical enough

7. From the list below, select FIVE items which you would like to see featured MORE prominently in *Amateur Radio* and circle More. Then select FIVE items which you would like to see featured LESS prominently and circle Less.

01	**ALARA Notes**	More	Less	*19*	**How's DX**	More	Less
02	**AMSAT Australia**	More	Less	*20*	**Intruder Watch**	More	Less
03	**Annual Reports**	More	Less	*21*	**Novice Notes**	More	Less
04	**Awards**	More	Less	*22*	**Operating articles**	More	Less
05	**Book Reviews**	More	Less	*23*	**Over-to-You letters**	More	Less
06	**Club News**	More	Less	*24*	**Packet World**	More	Less
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08	**Construction articles**	More	Less	*26*	**QSLs from the WIA Collection**	More	Less
09	**Contests**	More	Less	*27*	**QSP News**	More	Less
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14	**FTAC Notes**	More	Less	*32*	**Technical Correspondence**	More	Less
15	**General interest articles**	More	Less	*33*	**Technical theory articles**	More	Less
16	**HAMADS**	More	Less	*34*	**VHF/UHF - An Expanding World**	More	Less
17	**HF Predictions**	More	Less	*35*	**What's New**	More	Less
18	**History articles**	More	Less	*36*	**WIA News**	More	Less

8. On which subject(s) would you like to see a new regular column?

.....

.....

9. If you could make a single change to *Amateur Radio*, what would it be?

.....

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Please cut along this dotted line if you are unable to photocopy the survey form.

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The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

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Easy Up Antennas	MFJ38	$39.25
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	Ref	List Price
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If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.
Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.
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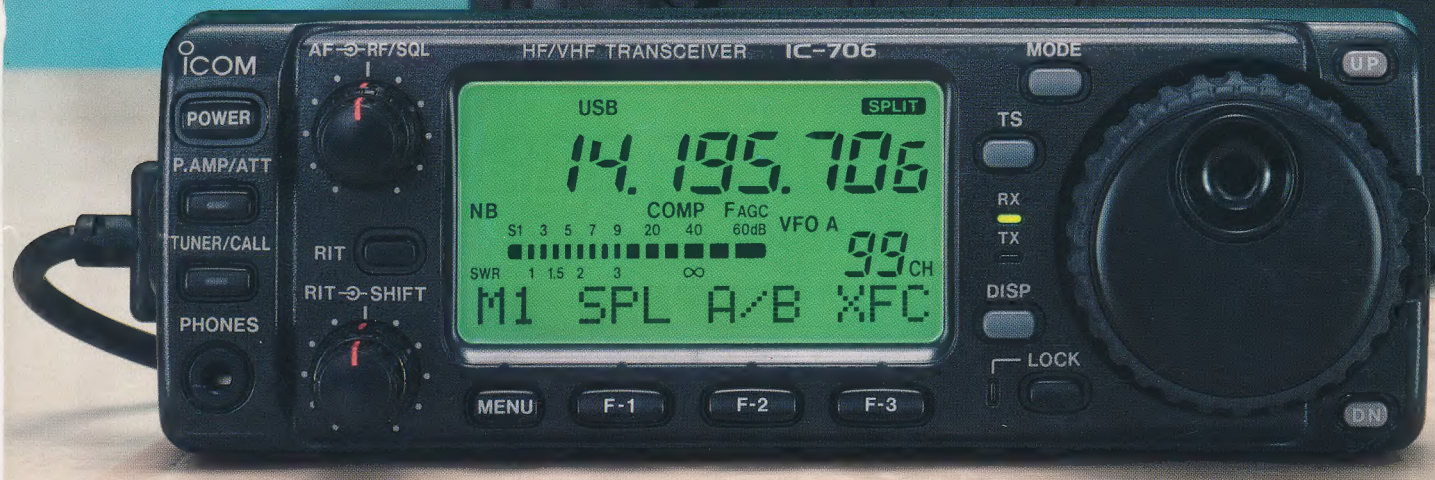

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